http://www.mideaaircon.com

Service manual

Room airconditioner

Split Wall-Mounted Type

Applied to: MSE-09CRN1-BQ8W; MSE-09HRN1-BQ8W

MSE-12CRN1-BQ8W; MSE-12HRN1-BQ8W

MSE-12CRN1-MQ8W; MSE-12HRN1-MQ8W

MSE-18CRN1-MQ8W; MSE-18HRN1-MQ8W

NOTE:

Before servicing the unit, please read this at first.
Always contact with your service center if meet problem.

Content

1 Precaution 1
1.1 Safety Precaution 1
1.2 Warning 1
2 Function 4
3 Dimension 5
4 Specification 7
5 Refrigerant cycle diagram 11
6 Operation limits 12
7 Wiring diagram 13
8 Installation details 21
8.1 Wrench torque sheet for installation 21
8.2 Connecting the cables 21
8.3 Pipe length and the elevation 21
8.4 Air purging of the piping and indoor unit 22
8.5 Pumping down (Re-installation) 24
8.6 Re-air purging (Re-installation) 25
8.7 Balance refrigerant of the 2-way, 3-way valves 26
8.8 Evacuation 27
8.9 Gas charging 28
9 Electronic function 29
9.1 Electronic control working environment 29
9.2 Proper symbols and their meaning 29
9.3 Function 30
9.4 Protection 30
9.5 Fan only mode 31
9.6 Cooling mode 31
9.7 Dehumidifying mode 32
9.8 Heating mode 32
9.9 Defrosting mode(available for heating mode) 33
9.10 Auto mode 34
9.11 Force cooling function 34
9.12 Sleep mode(Economic mode) 35
9.13 Auto restart function 36
9.14 Turbo mode 36
9.15 Ionizer (air clean) function 36
9.16 Follow me function 36
10 Model and Parameters 38
11 Troubleshooting 40
11.1 Display board 40
11.2 Troubleshooting 41
11.3 Diagnostic chart 42
11.4 Resetting phenomenon often occurs during operation 44

11.5 Indoor fan speed out of control 44
11.6 Temperature sensor error. 45
11.7 Over current protection of the compressor occurs 4 times 45
11.8 EEROM error 45
11.9 Outdoor unit protects 46
11.10 Indoor unit communication error. 46
12 Characteristic of temperature sensor 47

1 Precaution

1.1 Safety Precaution

- **To prevent injury to the user or other people and property damage, the following instructions must be followed.**
- **Incorrect operation due to ignoring instruction will cause harm or damage.**
- **Before service unit, be sure to read this service manual at first.**

1.2 Warning

➢ Installation

- **Do not use a defective or underrated circuit breaker. Use this appliance on a dedicated circuit.**

  There is risk of fire or electric shock.
- **For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized service center.**

  Do not disassemble or repair the product, there is risk of fire or electric shock.
- **Always ground the product.**

  There is risk of fire or electric shock.
- **Install the panel and the cover of control box securely.**

  There is risk of fire of electric shock.
- **Always install a dedicated circuit and breaker.**

  Improper wiring or installation may cause fore or electric shock.
- **Use the correctly rated breaker of fuse.**

  There is risk of fire or electric shock.
- **Do not modify or extend the power cable.**

  There is risk of fire or electric shock.
- **Do not install, remove, or reinstall the unit by yourself (customer).**

  There is risk of fire, electric shock, explosion, or injury.
- **Be caution when unpacking and installing the product.**

  Sharp edges could cause injury, be especially careful of the case edges and the fins on the condenser and evaporator.
- **For installation, always contact the dealer or an Authorized service center.**

  There is risk of fire, electric shock, explosion, or injury.
- **Do not install the product on a defective installation stand.**

  It may cause injury, accident, or damage to the product.
- **Be sure the installation area does not deteriorate with age.**

  If the base collapses, the air conditioner could fall with it, causing property damage, product failure, and personal injury.
- **Do not let the air conditioner run for a long time when the humidity is very high and a door or windows is left open.**

  Moisture may condense and wet or damage furniture.
- **Take care to ensure that power cable could not be pulled out or damaged during operation.**

  There is risk of fire or electric shock.

- **Do not place anything on the power cable.**
  There is risk of fire or electric shock.
- **Do not plug or unplug the power supply plug during operation.**
  There is risk of fire or electric shock.
- **Do not touch (operation) the product with wet hands.**
  There is risk of fire or electric shock.
- **Do not place a heater or other appliance near the power cable.**
  There is risk of fire and electric shock.
- **Do not allow water to run into electric parts.**
  It may cause fire, failure of the product, or electric shock.
- **Do not store or use flammable gas or combustible near the product.**
  There is risk of fire or failure of product.
- **Do not use the product in a tightly closed space for a long time.**
  Oxygen deficiency could occur.
- **When flammable gas leaks, turn off the gas and open a window for ventilation before turn the product on.**
  Do not use the telephone or turn switches on or off.
  There is risk of explosion or fire.
- **If strange sounds, or small or smoke comes from product. Turn the breaker off or disconnect the power supply cable.**
  There is risk of electric shock or fire.
- **Stop operation and close the window in storm or hurricane. If possible, remove the product from the window before the hurricane arrives.**
  There is risk of property damage, failure of product, or electric shock.
- **Do not open the inlet grill of the product during operation. (Do not touch the electrostatic filter, if the unit is so equipped.**
  There is risk of physical injury, electric shock, or product failure.
- **When the product is soaked (flooded or submerged), contact an Authorized service center.**
  There is risk of fire or electric shock.
- **Be caution that water could not enter the product.**
  There is risk of fire, electric shock, or product damage.
- **Ventilate the product from time to time when operating it together with a stove, etc.**
  There is risk of fire or electric shock.
- **Turn the main power off when cleaning or maintaining the product.**
  There is risk of electric shock.
- **When the product is not be used for a long time, disconnect the power supply plug or turn off the breaker.**
  There is risk of product damage or failure, or unintended operation.
- **Take care to ensure that nobody could step on or fall onto the outdoor unit.**
  This could result in personal injury and product damage.

➢ CAUTION

- **Always check for gas (refrigerant) leakage after installation or repair of product.**
  Low refrigerant levels may cause failure of product.
- **Install the drain hose to ensure that water is drained away properly.**
  A bad connection may cause water leakage.
- **Keep level even when installing the product.**
  To avoid vibration of water leakage.
- **Do not install the product where the noise or hot air from the outdoor unit could damage the neighborhoods.**
  It may cause a problem for your neighbors.

- **Use two or more people to lift and transport the product.**
  Avoid personal injury.
- **Do not install the product where it will be exposed to sea wind (salt spray) directly.**
  It may cause corrosion on the product. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient operation.

➢ Operational

- **Do not expose the skin directly to cool air for long periods of time. (Do not sit in the draft).**
  This could harm to your health.
- **Do not use the product for special purposes, such as preserving foods, works of art, etc. It is a consumer air conditioner, not a precision refrigerant system.**
  There is risk of damage or loss of property.
- **Do not block the inlet or outlet of air flow.**
  It may cause product failure.
- **Use a soft cloth to clean. Do not use harsh detergents, solvents, etc.**
  There is risk of fire, electric shock, or damage to the plastic parts of the product.
- **Do not touch the metal parts of the product when removing the air filter. They are very sharp.**
  There is risk of personal injury.
- **Do not step on pr put anything on the product. (outdoor units)**
  There is risk of personal injury and failure of product.
- **Always insert the filter securely. Clean the filter every two weeks or more often if necessary.**
  A dirty filter reduces the efficiency of the air conditioner and could cause product malfunction or damage.
- **Do not insert hands or other object through air inlet or outlet while the product is operated.**
  There are sharp and moving parts that could cause personal injury.
- **Do not drink the water drained from the product.**
  It is not sanitary could cause serious health issues.
- **Use a firm stool or ladder when cleaning or maintaining the product.**
  Be careful and avoid personal injury.
- **Replace the all batteries in the remote control with new ones of the same type. Do not mix old and mew batteries or different types of batteries.**
  There is risk of fire or explosion.
- **Do not recharge or disassemble the batteries. Do not dispose of batteries in a fire.**
  They may burn of explode.
- **If the liquid from the batteries gets onto your skin or clothes, wash it well with clean water. Do not use the remote of the batteries have leaked.**
  The chemical in batteries could cause burns or other health hazards.

2 Function

➢ Indoor unit

1. Operation ON/OFF by remote controller

2. Sensing by room temperature

Room temperature sensor. Pipe temperature sensor.

3. Room temperature control

Maintain the room temperature in accordance with the setting temperature.

4. Starting temperature control

Indoor fan is delayed for 5 sec at the starting.

5. Time Delay Safety control

Restarting is for approx. 3 minutes.

6. Indoor fan speed control

High, med, low, breeze.

7. Operation indication Lamps (LED)

Light up in the LED for each operation mode.

8. Two-direction air vane

The unit will decide the louver direction according to operation mode.

9. Sleep mode auto control

The fan is turn to low speed (cooling/heating).

The unit will be turn off after seven hours.

10. Independent dehumidification

The function is usually used in rainy days in springtime or damp areas

11. Self-diag. function

The function will be operate in any operation mode.

12. Air flow Direction control

The louver can be set at the desired position or swing up and down automatically

13. Auto mode

The unit can be change by the room temperature.

14. Anti-cold function

Prevent the cold wind at the beginning of unit start.

15. Temp. Compensation

16. Defrost mode

17. Auto-restart function

18. Flexible wiring connection

19. Easy clean panel

20. Ionizer (optional)

The function is operated by remote controller.

21. Follow me (optional)

The function is operated by remote controller.

22. Turbo（For some models）

This function enables the unit to reach the preset temperature in the shortest time under cooling mode.

➢ Outdoor unit

1. Power relay control

The unit has 3 mins delay between continuously ON/OFF operations.

2. Low noise air flow system

Bird tail propeller fan makes the outdoor unit run more quietly

3. Hydrophilic aluminum fin

For the cooling & heating mode only.

The hydrophilic fin can improve the heating efficiency at operation mode.

4. 4 way valve control

It is only operated in the heating operation mode except defrosting operation.

5. Anti-rust cabinet

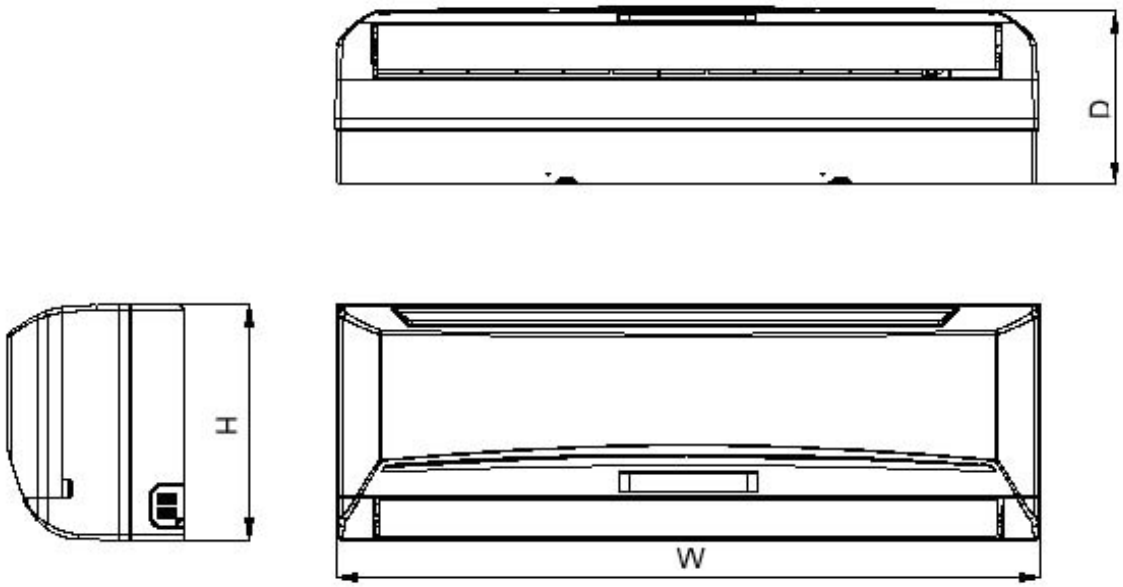
Made from electrolytic zinc steel sheet and anti-rust coated components.

6. Valve protection cover

It protects the valves and prevents water from dripping.

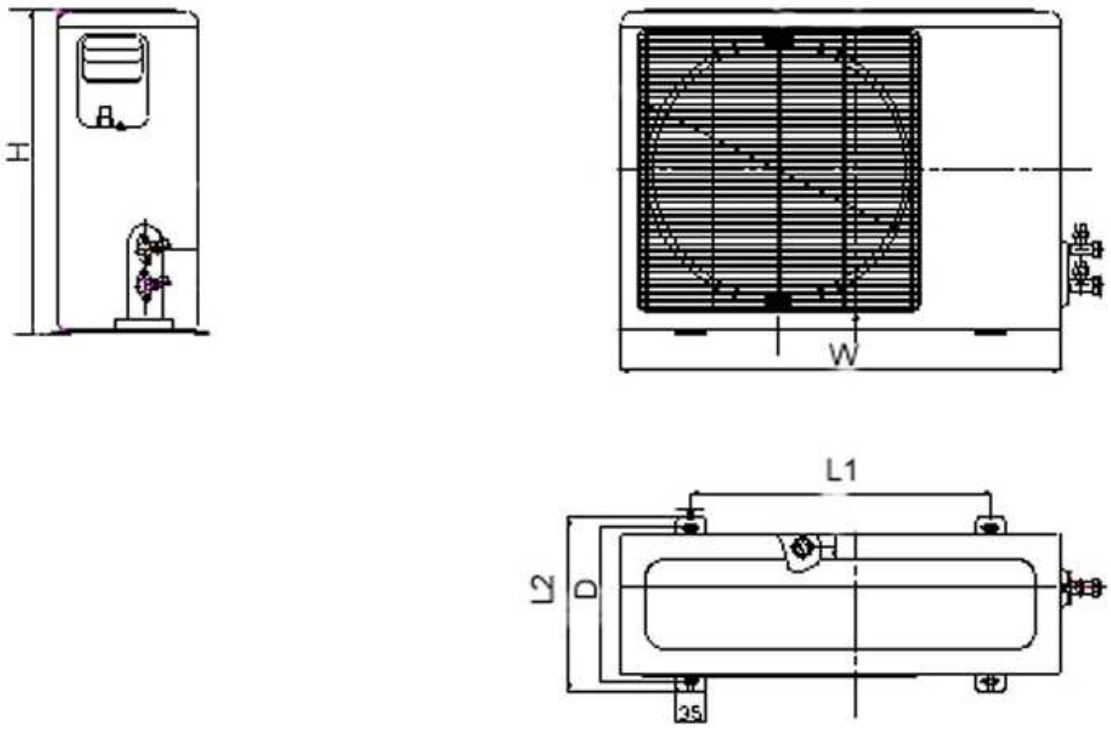
3 Dimension

Indoor unit



Dimension / Mode	W	H	D
9K	790	265	195
12K	920	292	225
18K	1080	330	225

outdoor unit



Dimension / Mode	W	H	D	L1	L2
9K	780	540	250	549	276
12K	760	590	285	530	290
18K	845	695	335	560	335

4 Specification

Model			MSE-09CRN1-BQ8W	MSE-09HRN1-BQ8W
Power supply		**Ph-V-Hz**	1, 115V~,60Hz	1, 115V~,60Hz
Cooling	Capacity	Btu/h	9000	9000
	Input	W	780	780
	Rated current	A	7.3	7.6
	SEER	Btu/w.h	13	13
Heating	Capacity	Btu/h	/	10000
	Input	W	/	810
	Rated current	A	/	7.6
	HSPF	W/W	/	7.7
Max. current		A	13.6	13.6
Starting current		A	40	40
Compressor	Model		EA82X1C-1FZDU1	EA82X1C-1FZDU1
	Type		ROTARY	ROTARY
	Brand		TOSHIBA	TOSHIBA
	Capacity	Btu/h	8138	8138
	Input	W	810	810
	Rated current(RLA)	A	7.5	7.5
	Locked rotor Amp(LRA)	A	40	40
	Thermal protector		B350-135-141E	B350-135-141E
	Capacitor	uF	45μF /250VAC	45μF /250VAC
	Refrigerant oil	ml	350	350
Indoor fan motor	Model		WZDK20-38D	WZDK20-38D
	Brand		Welling	Welling
	Input	W	25	25
	Capacitor	uF	——	——
	Speed(hi/mi/lo)	r/min	1250/1000/800	1250/1000/800
Indoor air flow (Hi/Mi/Lo)		m3/h	580/500/420	580/500/420
Indoor noise level (Hi/Mi/Lo)		dB(A)	40/34/27	40/34/27
Outdoor fan motor	Model		YDK23-6A	YDK23-6A
	Brand		Broad Ocean	Broad Ocean
	Input	W	77	77
	Capacitor	uF	6.5	6.5
	Speed	r/min	910	910
Outdoor air flow		m^3/h	1800	1800
Outdoor noise level		dB(A)	55	55
Refrigerant type R410A		g	1050	1070
Design pressure		MPa	4.5	4.5
Refrigerant piping	Liquid side/ Gas side	mm	Φ6.35/Φ9.53	Φ6.35/Φ9.53
	Max. refrigerant pipe length	m	10	10
	Max. difference in level	m	5	5
Operation temp		℃	17-30	17-30
Ambient temp		℃	18-45	-7-45
Application area		m^2	14-21	14-21

Note:

The noise date is base on hemi-anechoic chamber, during actual operation; these values are normally somewhat different as a result of ambient condition.

The above design and specifications are subject to change without prior notice for product improvement.

Model			MSE-12CRN1-BQ8W	MSE-12HRN1-BQ8W
Power supply		**Ph-V-Hz**	1, 115V~,60Hz	1, 115V~,60Hz
Cooling	Capacity	Btu/h	12000	12000
	Input	W	1090	1090
	Rated current	A	10	10
	SEER	Btu/w.h	13	13
Heating	Capacity	Btu/h	/	12500
	Input	W	/	1060
	Rated current	A	/	10
	COP	W/W	/	7.7
Max. current		A	17.2	17.2
Starting current		A	47	47
Compressor	Model		EA108X1C-1FZDU1	EA108X1C-1FZDU1
	Type		ROTARY	ROTARY
	Brand		TOSHIBA	TOSHIBA
	Capacity	Btu/h	10918	10918
	Input	W	1085	1085
	Rated current(RLA)	A	9.9	9.9
	Locked rotor Amp(LRA)	A	47	47
	Thermal protector		B440-135-141E	B440-135-141E
	Capacitor	uF	45μF /250VAC	45μF /250VAC
	Refrigerant oil	ml	350	350
Indoor fan motor	Model		WZDK25-38D	WZDK25-38D
	Brand		WELLING	WELLING
	Input	W	32	32
	Capacitor	uF	——	——
	Speed(hi/mi/lo)	r/min	1270/1100/1000	1270/1100/1000
Indoor air flow (Hi/Mi/Lo)		m3/h	800/730/600	800/730/600
Indoor noise level (Hi/Mi/Lo)		dB(A)	44/40/36	44/40/36
Outdoor fan motor	Model		YDK23-6A	YDK23-6A
	Brand		BROAD OCEAN	BROAD OCEAN
	Input	W	75	75
	Capacitor	uF	6.5uF/260V	6.5uF/260V
	Speed	r/min	900	900
Outdoor air flow		m^3/h	1850	1850
Outdoor noise level		dB(A)	56	56
Refrigerant type R410A		g	1330	1350
Design pressure		MPa	4.5	4.5
Refrigerant piping	Liquid side/ Gas side	mm	Φ6.35/Φ12.7	Φ6.35/Φ12.7
	Max. refrigerant pipe length	m	10	10
	Max. difference in level	m	5	5
Operation temp		℃	17-30	17-30
Ambient temp		℃	18-45	-7-45
Application area		m^2	18-26	18-26

Note:

The noise date is base on hemi-anechoic chamber, during actual operation; these values are normally somewhat different as a result of ambient condition.

The above design and specifications are subject to change without prior notice for product improvement.

Model			MSE-12CRN1-MQ8W	MSE-12HRN1-MQ8W
Power supply		**Ph-V-Hz**	1, 208-230V~, 60Hz	1, 208-230V~, 60Hz
Cooling	Capacity	Btu/h	12000	12000
	Input	W	1070	1070
	Rated current	A	4.75	4.75
	SEER	Btu/w.h	13	13
Heating	Capacity	Btu/h	/	12500
	Input	W	/	1060
	Rated current	A	/	4.7
	HSPF	W/W	/	7.7
Max. current		A	7.8	7.8
Starting current		A	21/23.5	21/23.5
Compressor	Model		PA108X1C-3FZDU	PA108X1C-3FZDU
	Type		ROTARY	ROTARY
	Brand		TOSHIBA	TOSHIBA
	Capacity	Btu/h	10850/11000	10850/11000
	Input	W	1070/1075	1070/1075
	Rated current(RLA)	A	5.2/4.8	5.2/4.8
	Locked rotor Amp(LRA)	A	21/23.5	21/23.5
	Thermal protector		B185-135-141C	B185-135-141C
	Capacitor	uF	35μF /370VAC	35μF /370VAC
	Refrigerant oil	ml	350	350
Indoor fan motor	Model		WZDK25-38D	WZDK25-38D
	Brand		WELLING	WELLING
	Input	W	32	32
	Capacitor	uF	——	——
	Speed(hi/mi/lo)	r/min	1270/1100/1000	1270/1100/1000
Indoor air flow (Hi/Mi/Lo)		m3/h	800/730/600	800/730/600
Indoor noise level (Hi/Mi/Lo)		dB(A)	44/40/36	44/40/36
Outdoor fan motor	Model		YDK36-6B	YDK36-6B
	Brand		WELLING	WELLING
	Input	W	85	85
	Capacitor	uF	2.5uF/450V	2.5uF/450V
	Speed	r/min	930	930
Outdoor air flow		m^3/h	1900	1900
Outdoor noise level		dB(A)	56	56
Refrigerant type R410A		g	1330	1350
Design pressure		MPa	4.5	4.5
Refrigerant piping	Liquid side/ Gas side	mm	Φ6.35/Φ12.7	Φ6.35/Φ12.7
	Max. refrigerant pipe length	m	10	10
	Max. difference in level	m	5	5
Operation temp		℃	17-30	17-30
Ambient temp		℃	18-45	-7-45
Application area		m^2	18-26	18-26

Note:

The noise date is base on hemi-anechoic chamber, during actual operation; these values are normally somewhat different as a result of ambient condition.

The above design and specifications are subject to change without prior notice for product improvement.

Model			MSE-18CRN1-MQ8W	MSE-18HRN1-MQ8W
Power supply		**Ph-V-Hz**	1, 208-230V~, 60Hz	1, 208-230V~, 60Hz
Cooling	Capacity	Btu/h	18000	18000
	Input	W	1550	1550
	Rated current	A	6.8	6.8
	SEER	Btu/w.h	13	13
Heating	Capacity	Btu/h	/	18000
	Input	W	/	1600
	Rated current	A	/	7
	HSPF	W/W	/	7.7
Max. current		A	12.7	12.7
Starting current		A	32.6	32.6
Compressor	Model		PA150X2CS-3KUU	PA150X2CS-3KUU
	Type		ROTARY	ROTARY
	Brand		TOSHIBA	TOSHIBA
	Capacity	Btu/h	15166/15354	15166/15354
	Input	W	1505/1510	1505/1510
	Rated current(RLA)	A	7.30/6.65	7.30/6.65
	Locked rotor Amp(LRA)	A	32.6	32.6
	Thermal protector		UP3RE0391-T39	UP3RE0391-T39
	Capacitor	uF	40μF /370VAC	40μF /370VAC
	Refrigerant oil	ml	750	750
Indoor fan motor	Model		YDK36-4C	YDK36-4C
	Brand		Welling	Welling
	Input	W	70/66/63	70/66/63
	Capacitor	uF	3μF/450V	3μF/450V
	Speed(hi/mi/lo)	r/min	1250/1180/1110	1250/1180/1110
Indoor air flow (Hi/Mi/Lo)		m3/h	1080/1020/960	1080/1020/960
Indoor noise level (Hi/Mi/Lo)		dB(A)	47/44/41	47/44/41
Outdoor fan motor	Model		YDK53-6KB	YDK53-6KB
	Brand		WELLING	WELLING
	Input	W	165	165
	Capacitor	uF	3uF/450V	3uF/450V
	Speed	r/min	840	840
Outdoor air flow		m^3/h	2500	2500
Outdoor noise level		dB(A)	59	59
Refrigerant type R410A		g	2000	2040
Design pressure		MPa	4.5	4.5
Refrigerant piping	Liquid side/ Gas side	mm	Φ6.35/Φ12.7	Φ6.35/Φ12.7
	Max. refrigerant pipe length	m	10	10
	Max. difference in level	m	5	5
Operation temp		℃	17-30	17-30
Ambient temp		℃	18-45	-7-45
Application area		m^2	30-40	30-40

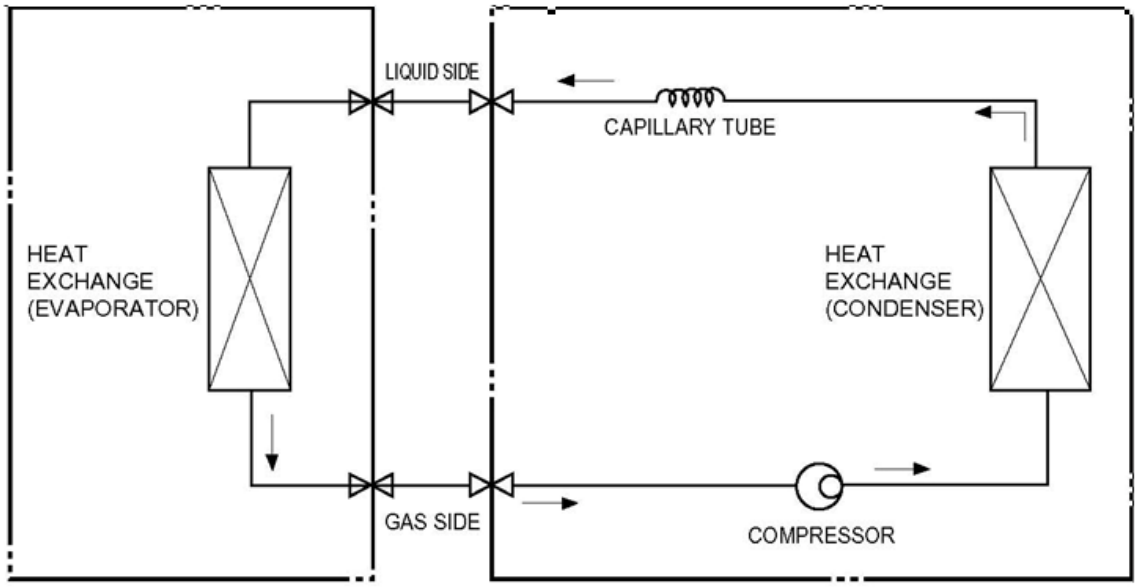
Note:

The noise date is base on hemi-anechoic chamber, during actual operation; these values are normally somewhat different as a result of ambient condition.

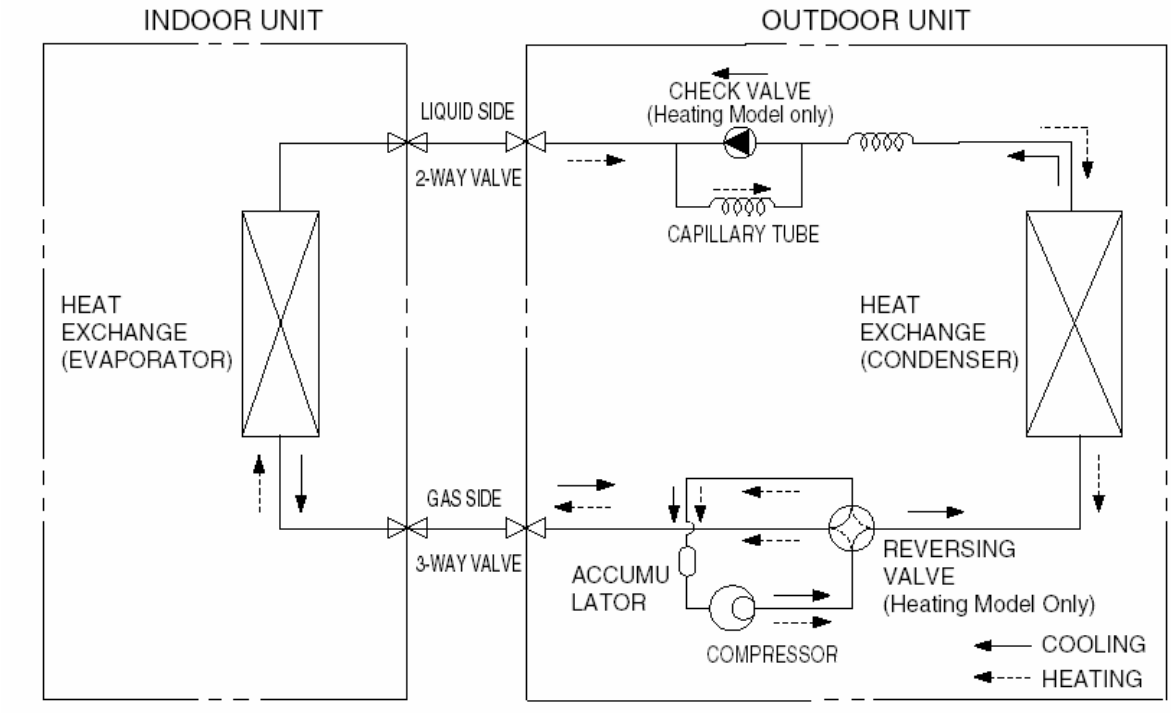
The above design and specifications are subject to change without prior notice for product improvement.

5 Refrigerant cycle diagram

➢ Cooling only



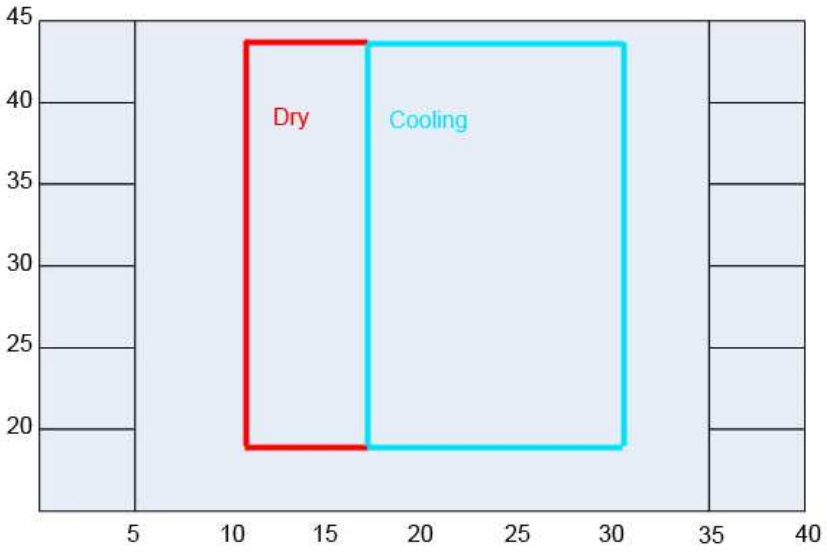
➢ Heat pump mode



6 Operation limits

Cooling operation

Outdoor unit air temp.℃ DB

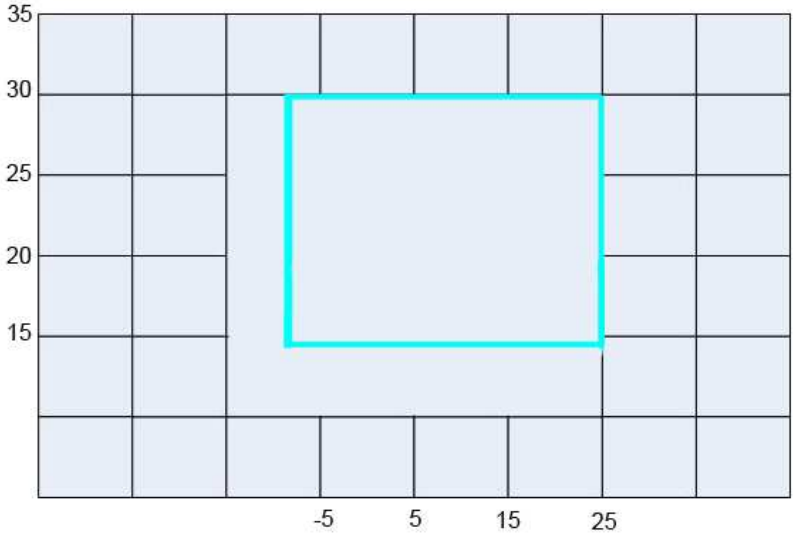


Indoor air temp. ℃ DB

Note: The chart is the result from the continuous operation under constant air temperature conditions. However, excludes the initial pull-down stage.

Heating operation

Indoor air temp. ℃ DB



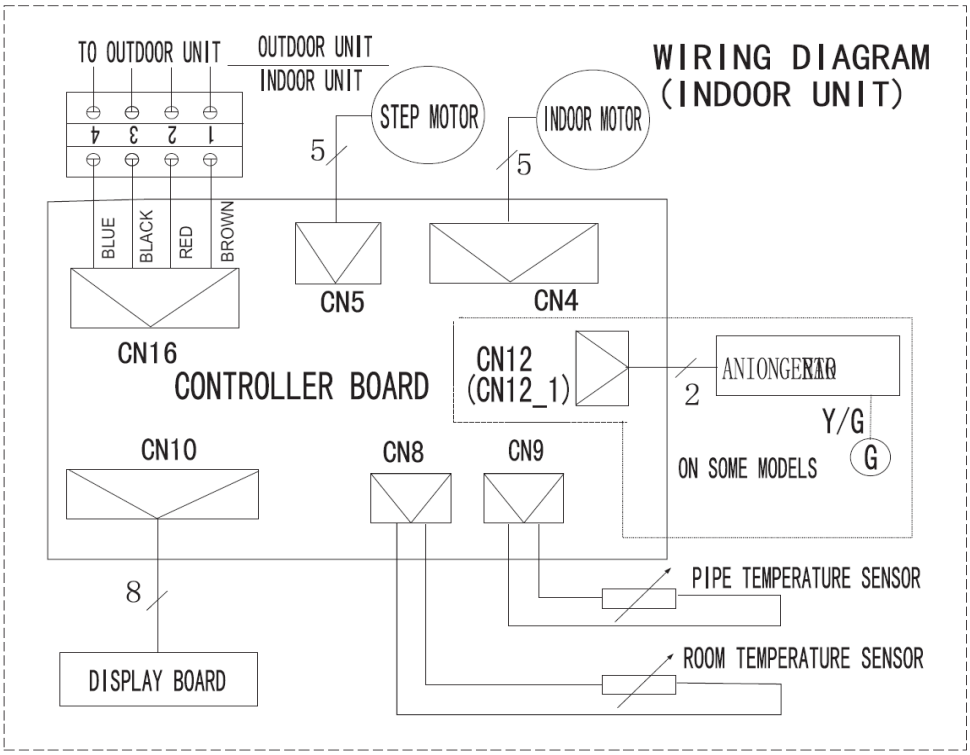
Outdoor unit air temp.℃ DB

Note: The chart is the result from the continuous operation under constant air temperature conditions. However, excludes the initial pull-down stage.

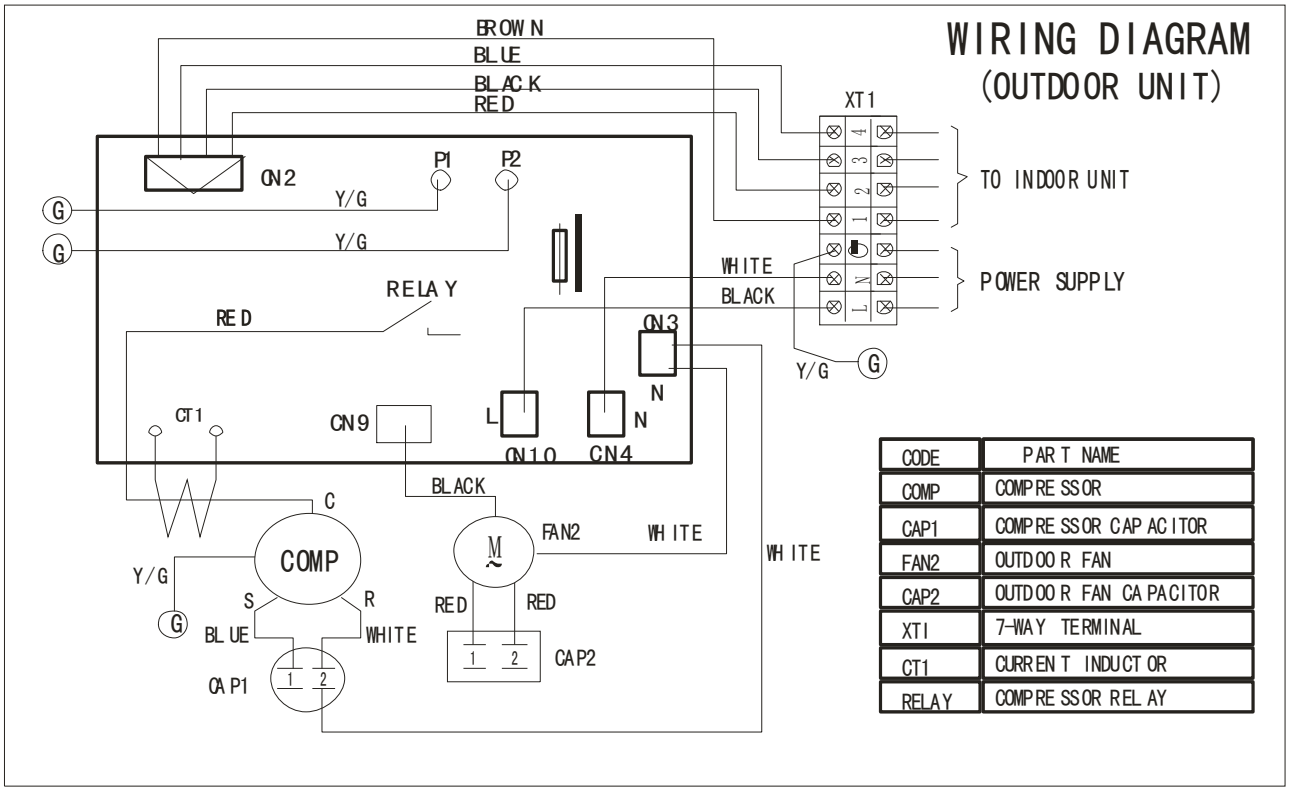
7 Wiring diagram

MSE-09CRN1-BQ8W;

Indoor unit:

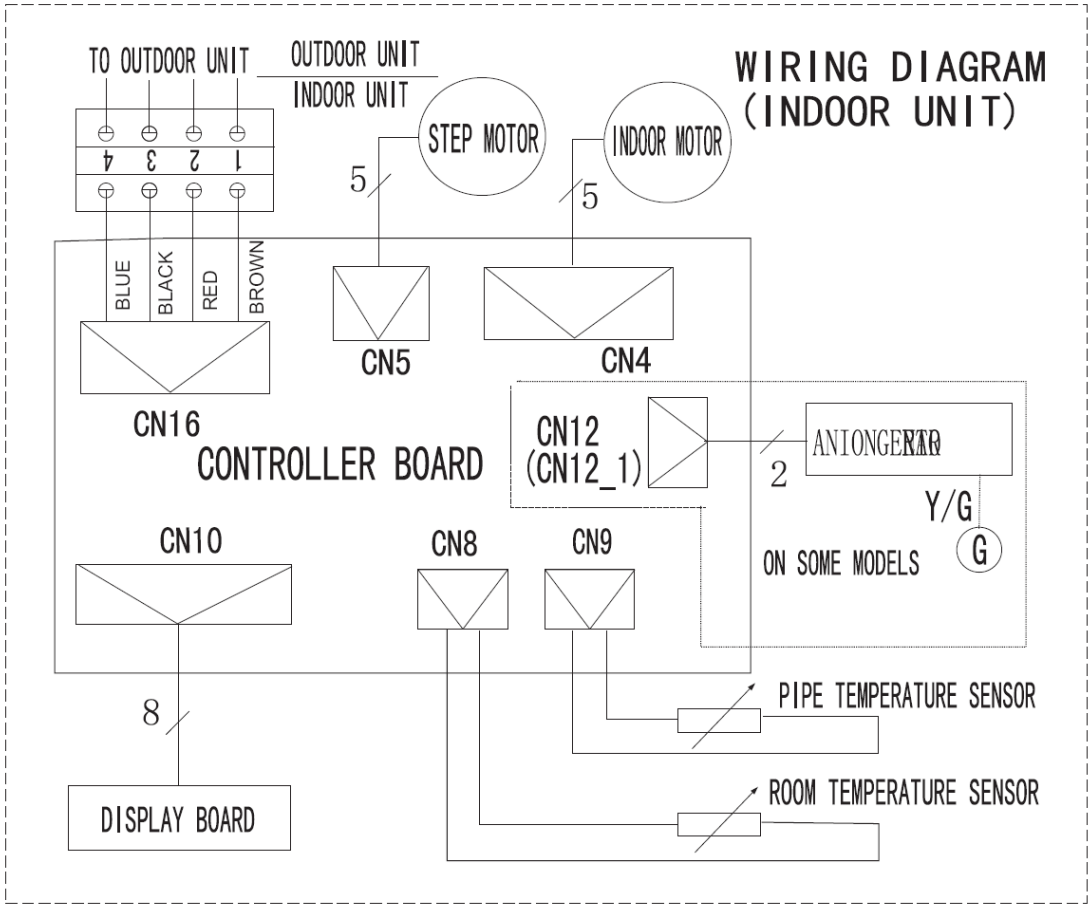


outdoor unit:

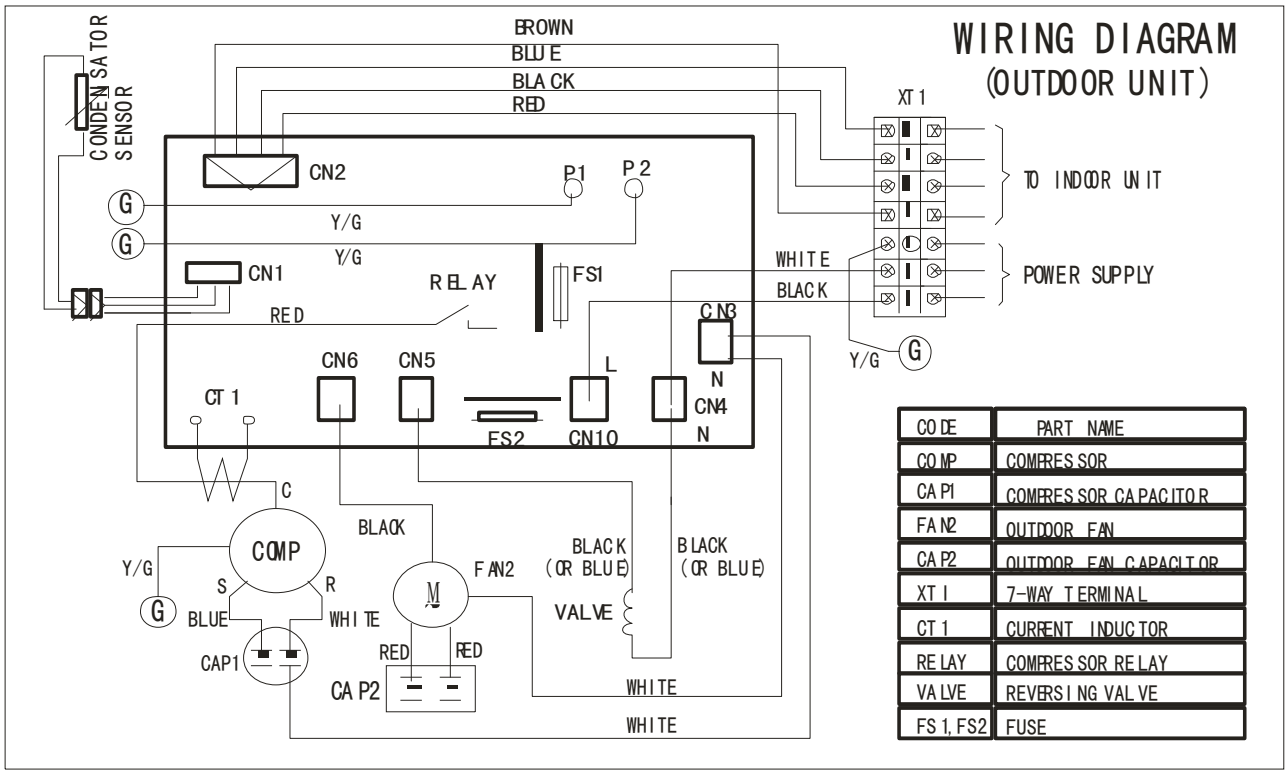


MSE-09HRN1-BQ8W

Indoor unit:

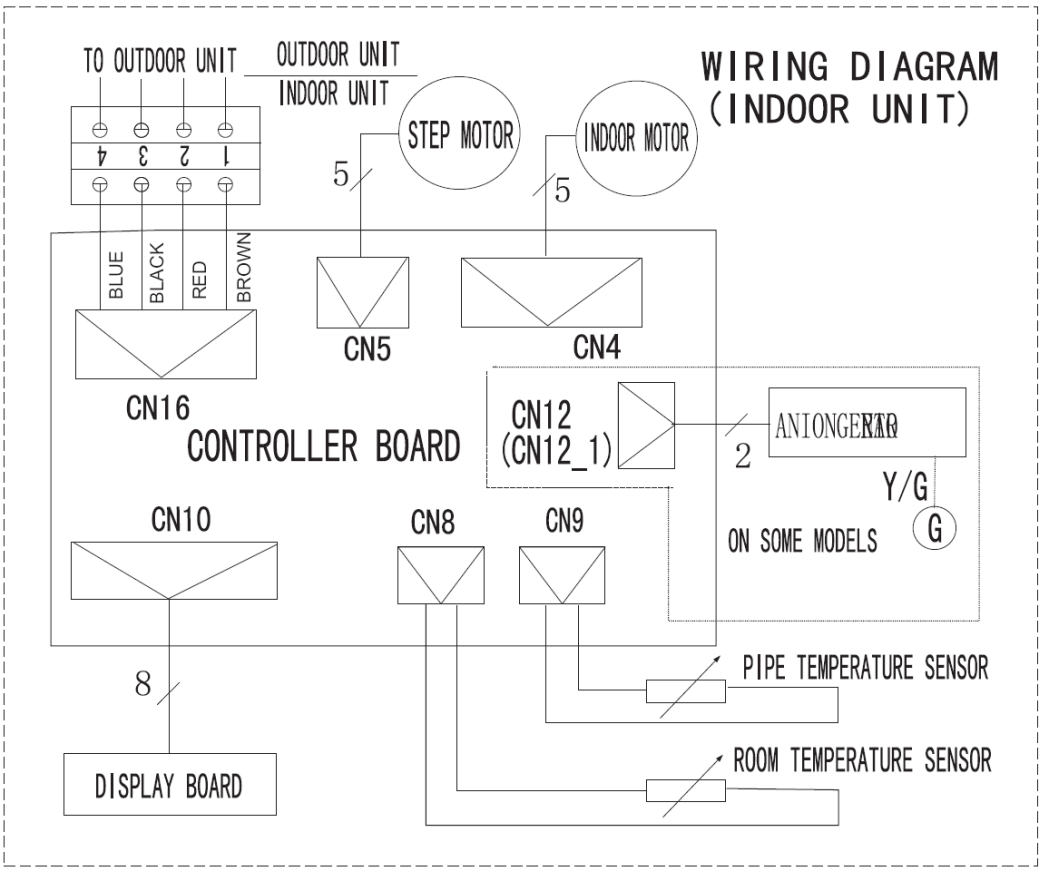


outdoor unit:

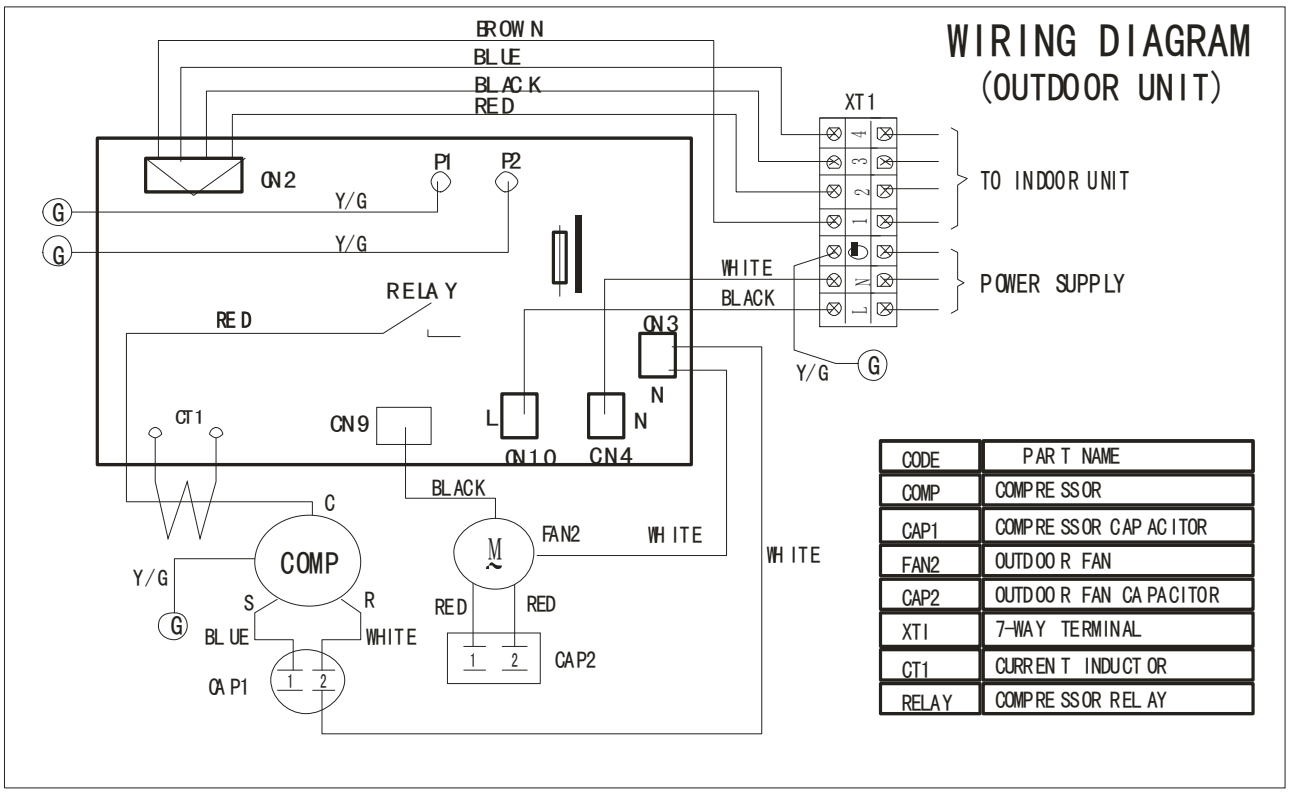


MSE-12CRN1-BQ8W

Indoor unit:



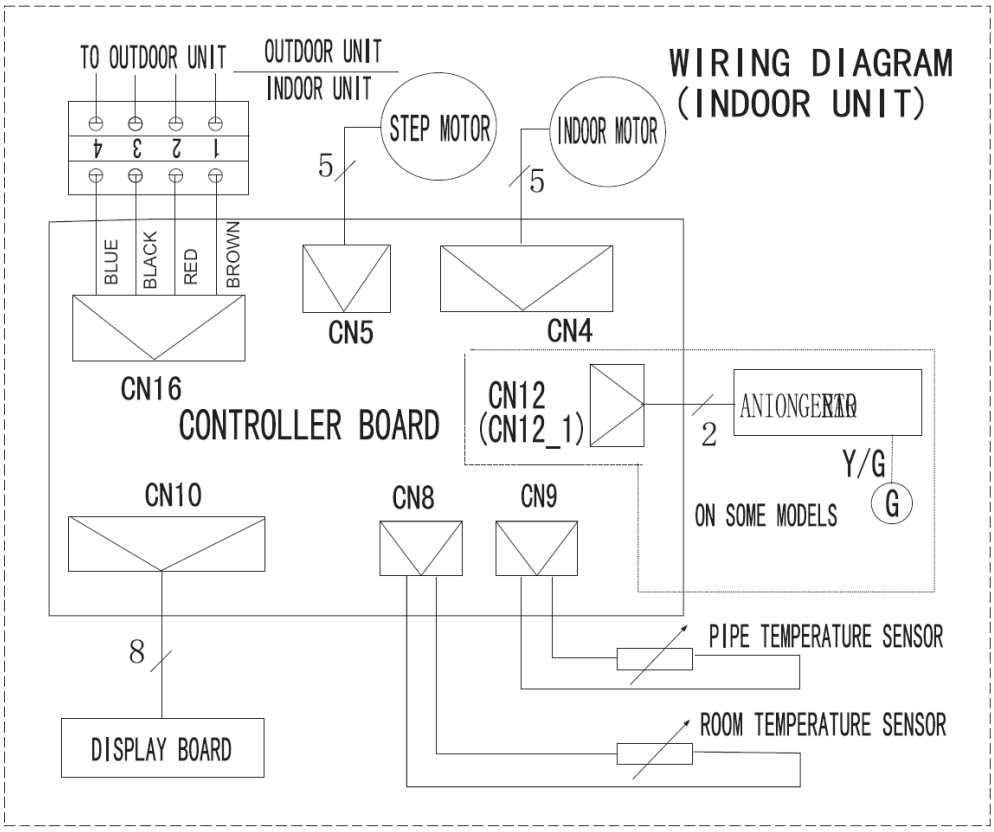
outdoor unit:



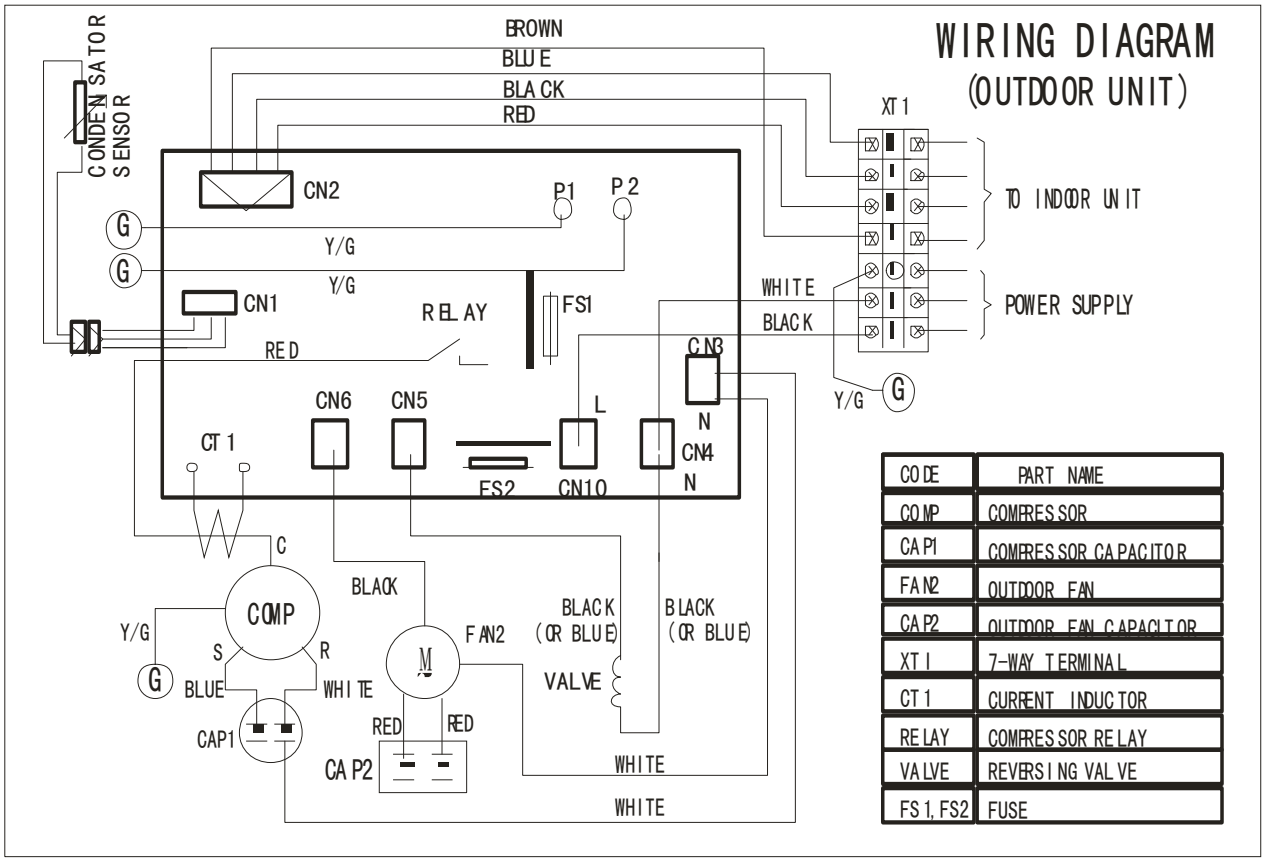
CODE	PART NAME
COMP	COMPRESSOR
CAP1	COMPRESSOR CAPACITOR
FAN2	OUTDOOR FAN
CAP2	OUTDOOR FAN CAPACITOR
XT1	7-WAY TERMINAL
CT1	CURRENT INDUCTOR
RELAY	COMPRESSOR RELAY

MSE-12HRN1-BQ8W

Indoor unit:

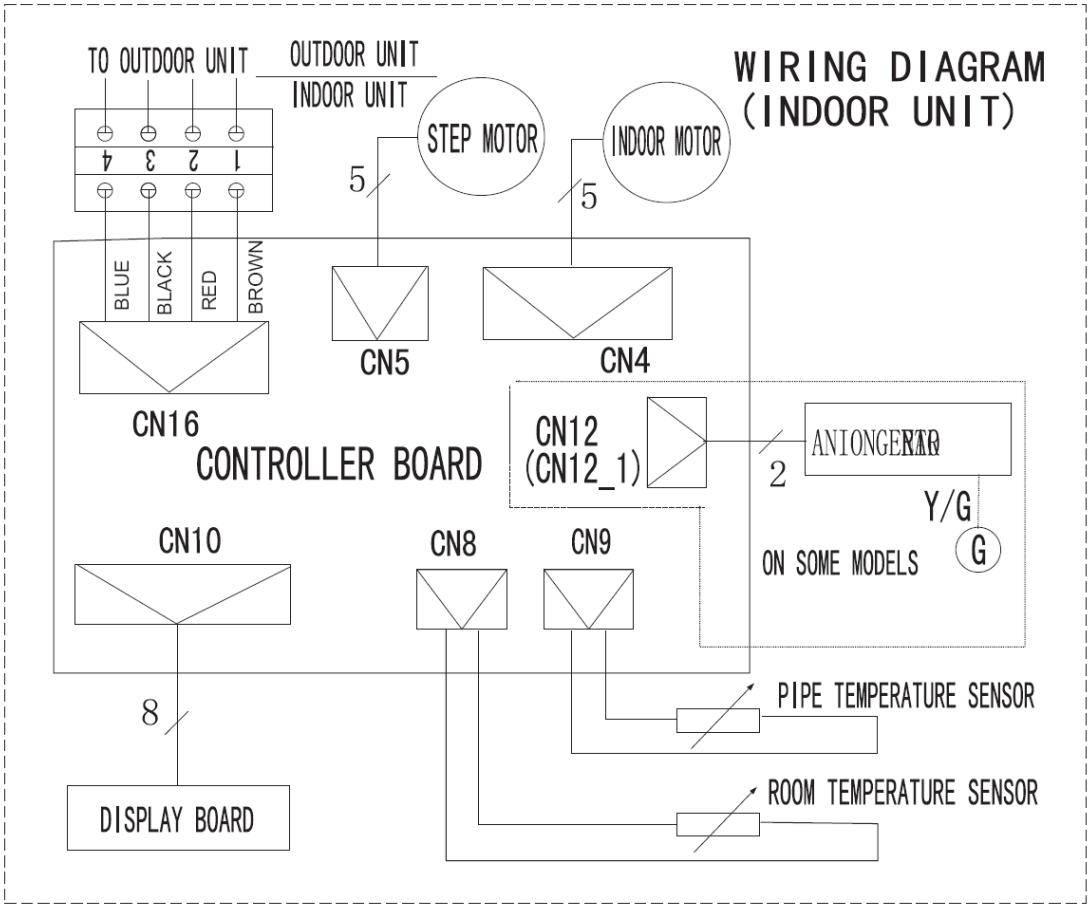


outdoor unit:

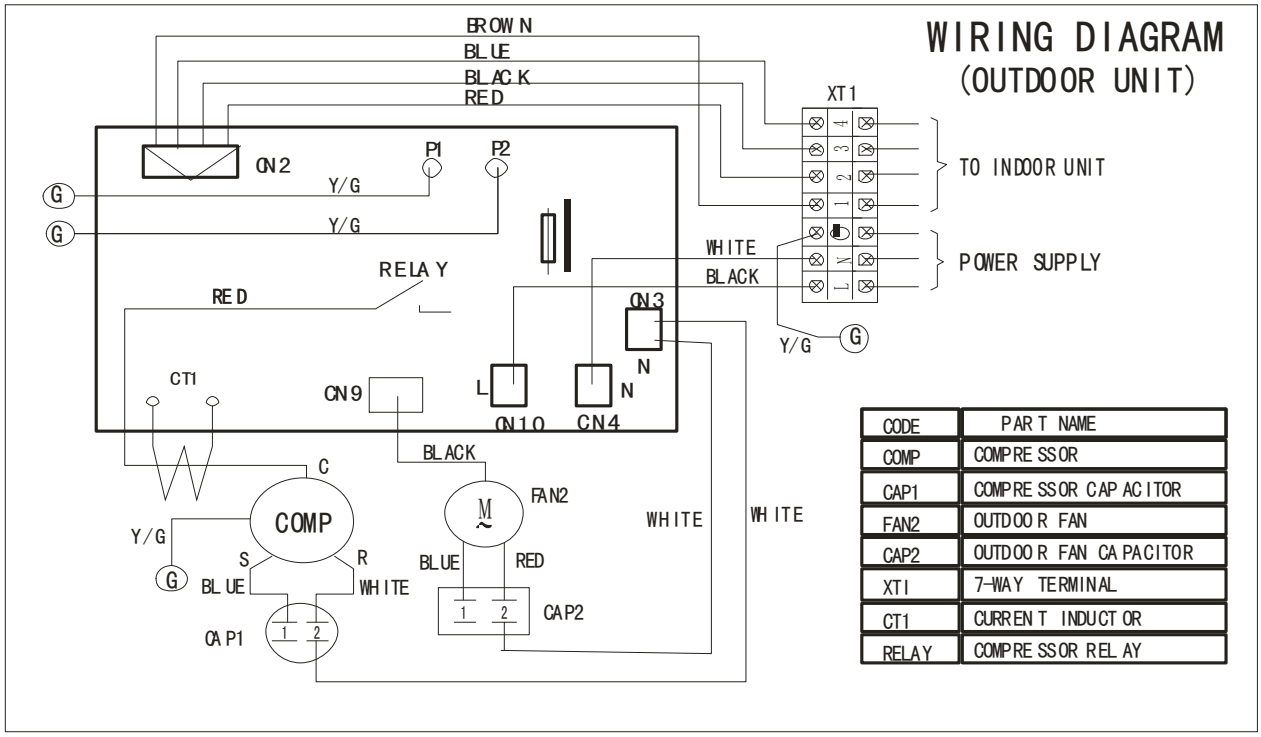


MSE-12CRN1-MQ8W

Indoor unit:

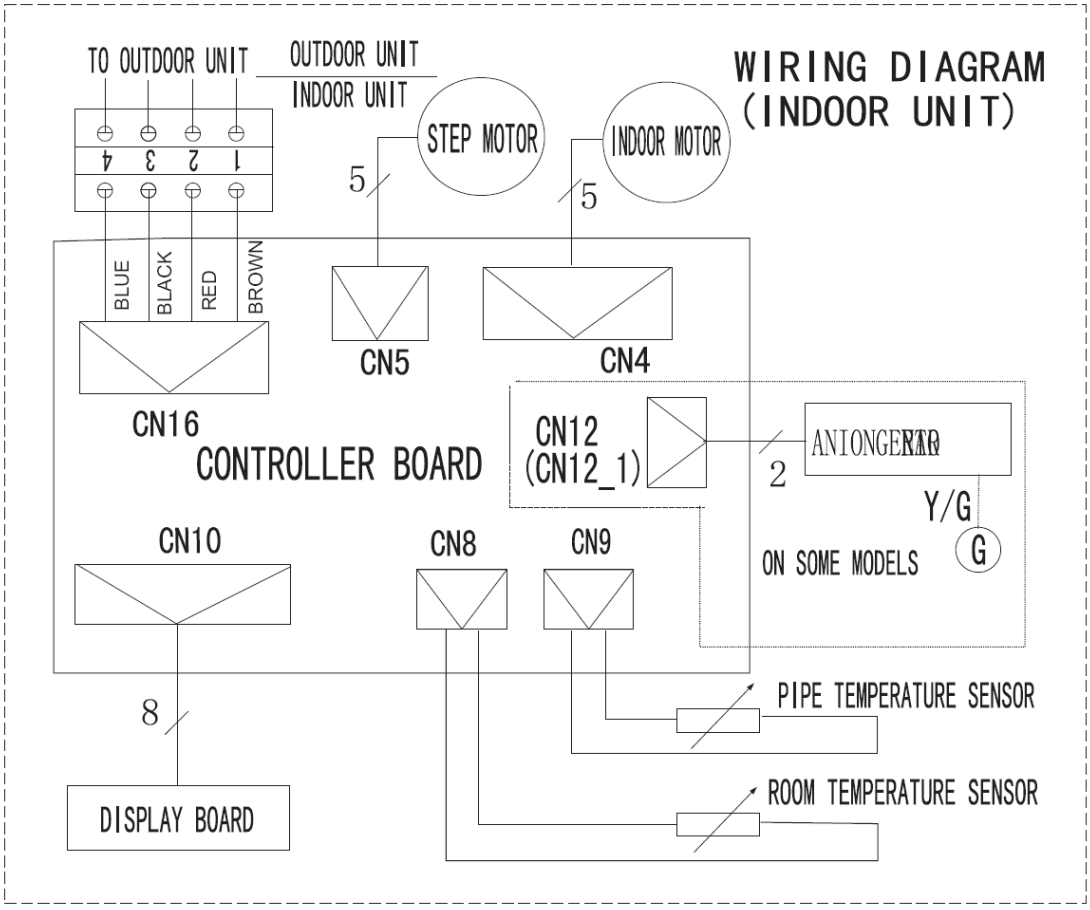


Outdoor unit

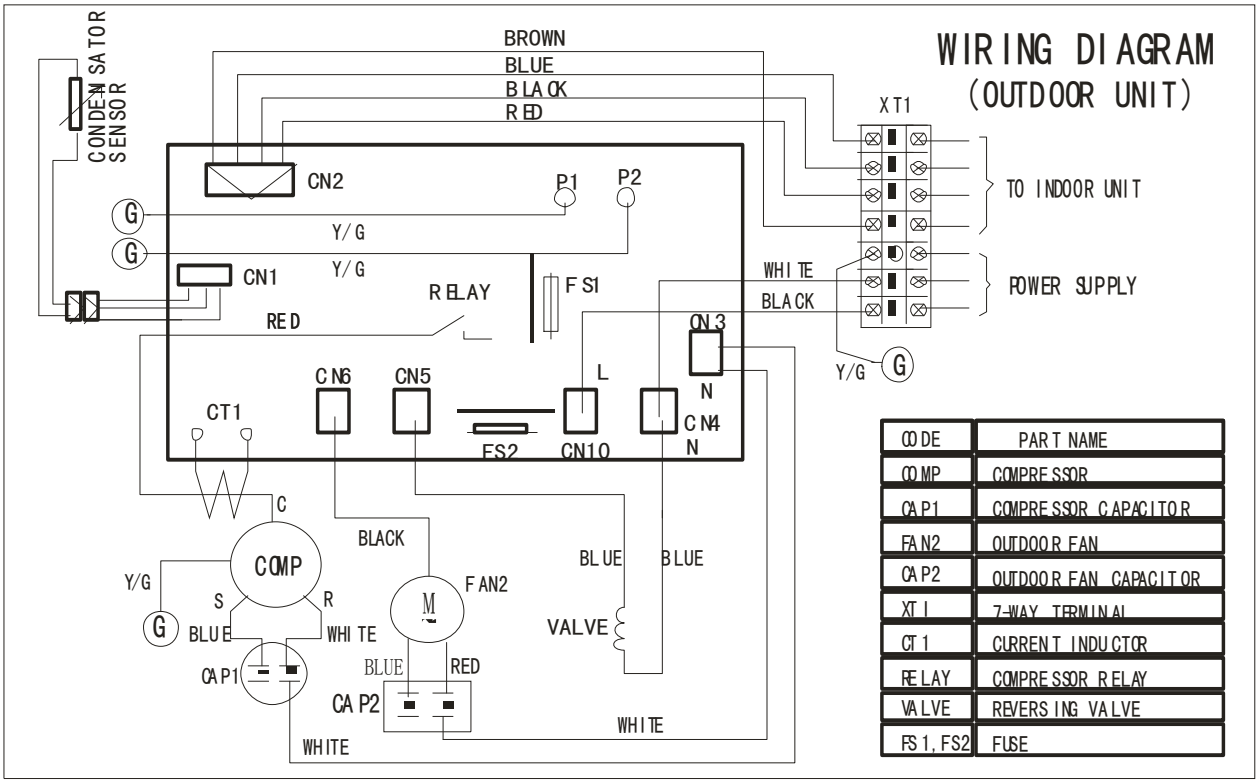


MSE-12HRN1-MQ8W

Indoor unit:

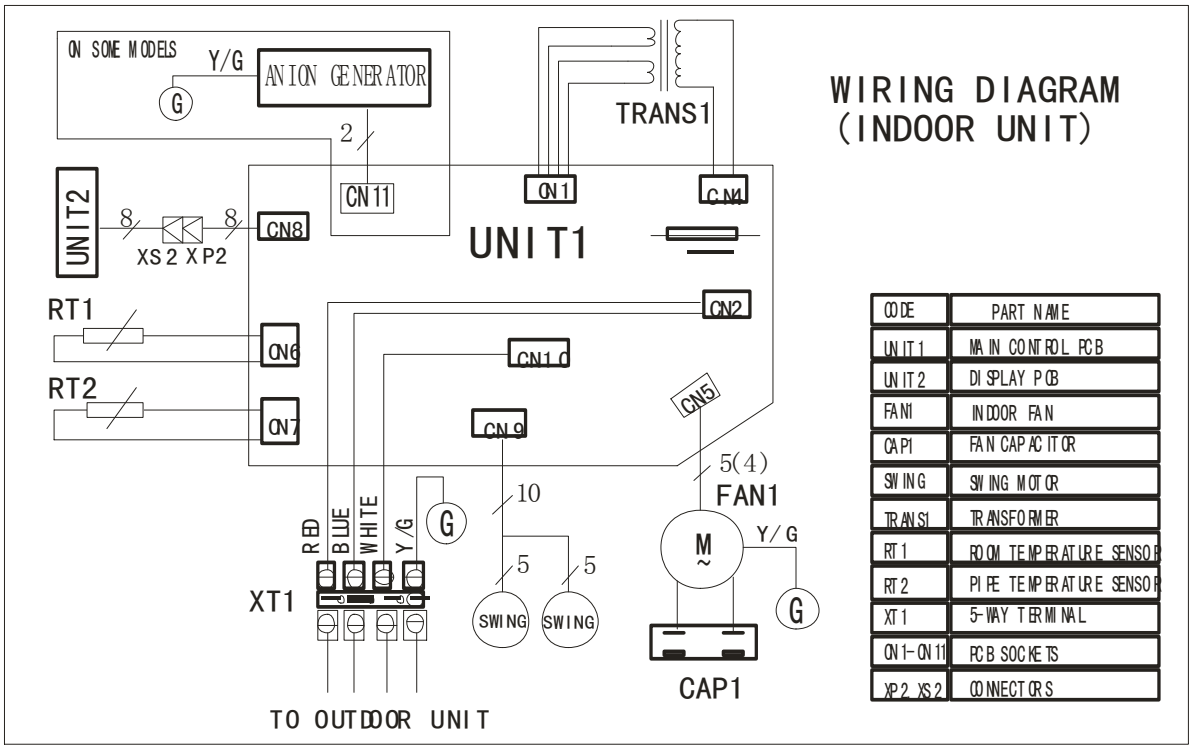


Outdoor unit

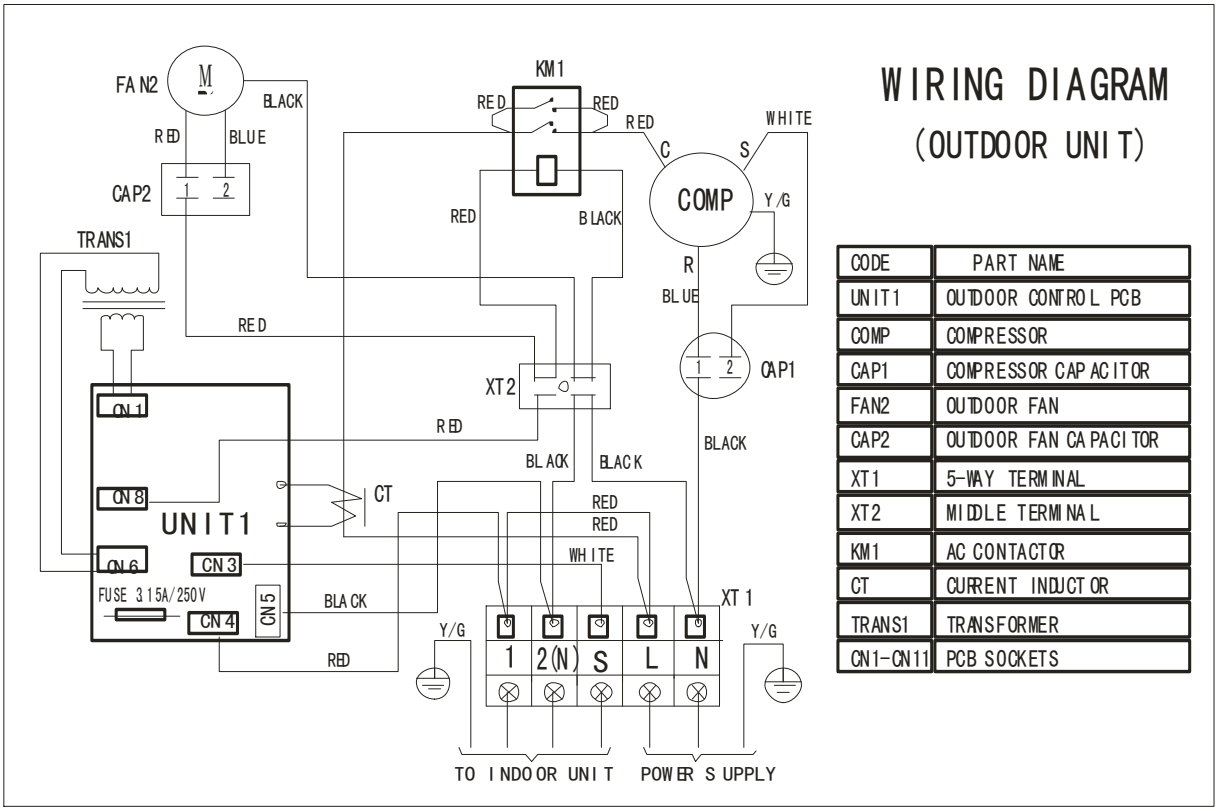


MSE-18CRN1-MQ8W

Indoor unit:

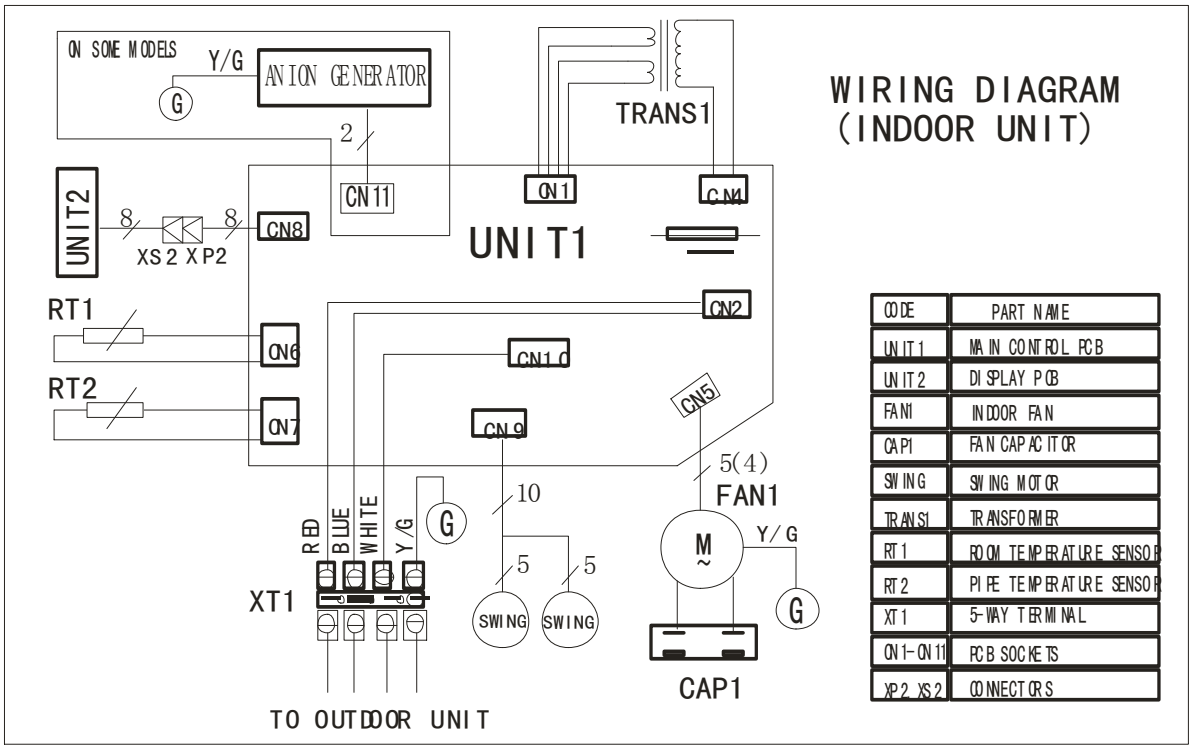


Outdoor unit

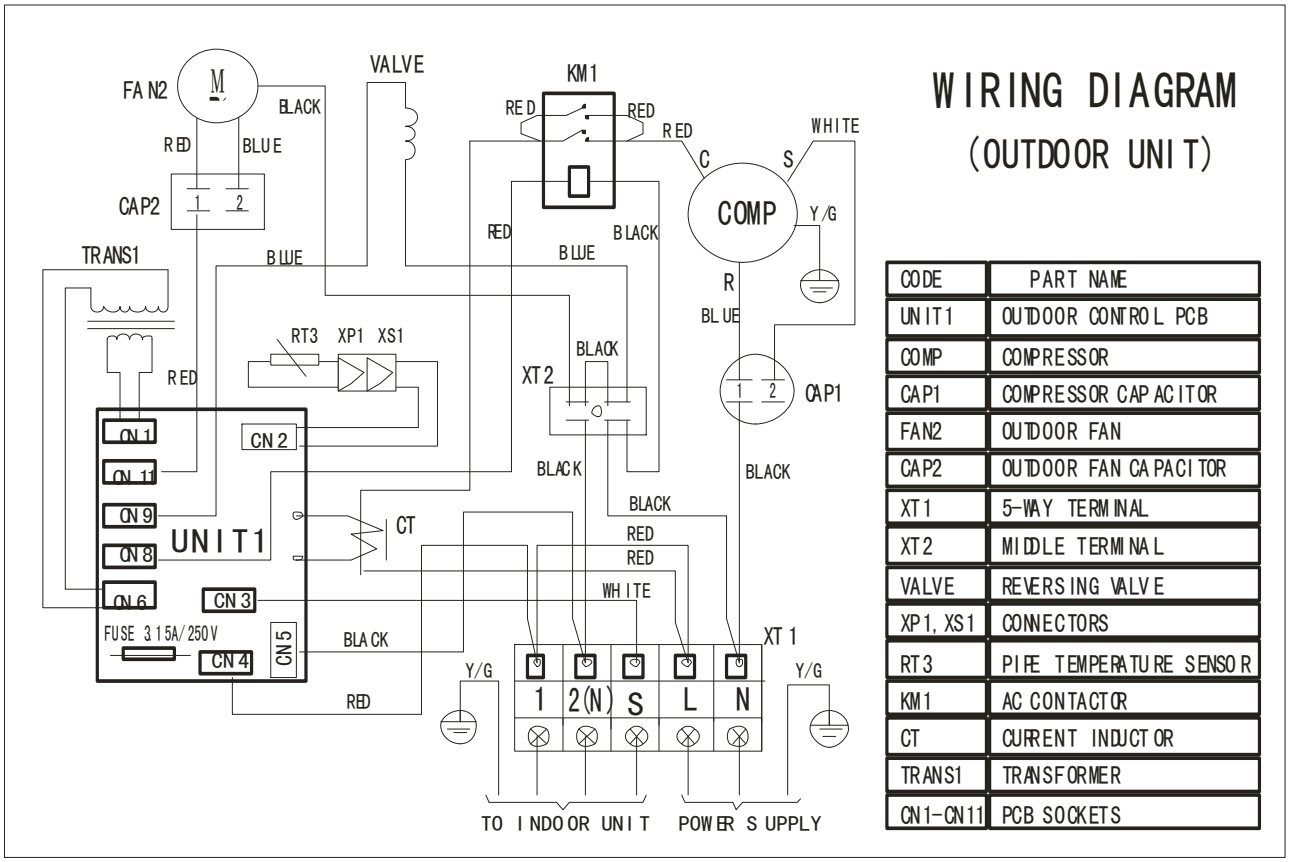


MSE-18HRN1-MQ8W

Indoor unit:



Outdoor unit



8 Installation details

8.1 Wrench torque sheet for installation

Outside diameter		Torque
mm	inch	Kg.m
φ6.35	1/4	1.8
φ9.52	3/8	4.2
φ12.7	1/2	5.5
φ15.88	5/8	6.6
φ19.05	3/4	6.6

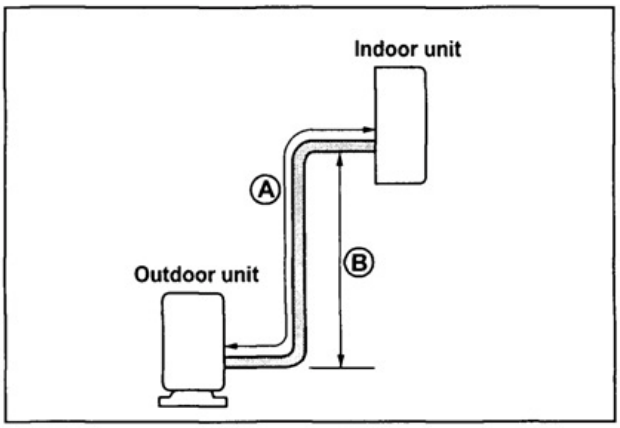
8.2 Connecting the cables

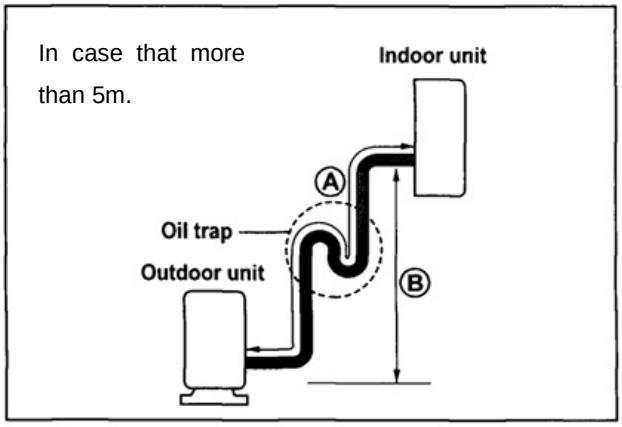
The power cord of connect should be selected according to the following specifications sheet.

	Grade		
Amp	10	15	20
mm^2	1.0	1.5	2.5

8.3 Pipe length and the elevation

Capacity	Pipe size		Standard length	Max.	Max.	Additional
			(m)	Elevation	Elevation	refrigerant
Btu/h	GAS	LIQUID		B (m)	A (m)	(g/m)
7k~12K	3/8'' (φ9.52)	1/4'' (φ6.35)	5	5	10	30
	1/2'' (φ12.7)	1/4'' (φ6.35)	5	5	10	30
16K~28K	1/2'' (φ12.7)	1/4'' (φ6.35)	5	8	15	30
	5/8'' (φ15.88)	1/4'' (φ6.35)	5	10	20	30
	5/8'' (φ15.88)	3/8'' (φ9.52)	5	10	20	65
30K~36K	5/8'' (φ15.88)	3/8'' (φ9.52)	5	15	30	65
	3/4'' (φ19.05)	3/8'' (φ9.52)	5	15	30	65





Caution:

Capacity is base on standard length and maximum allowance length is base of reliability.

Oil trap should be install per 5-7 meters.

8.4 Air purging of the piping and indoor unit

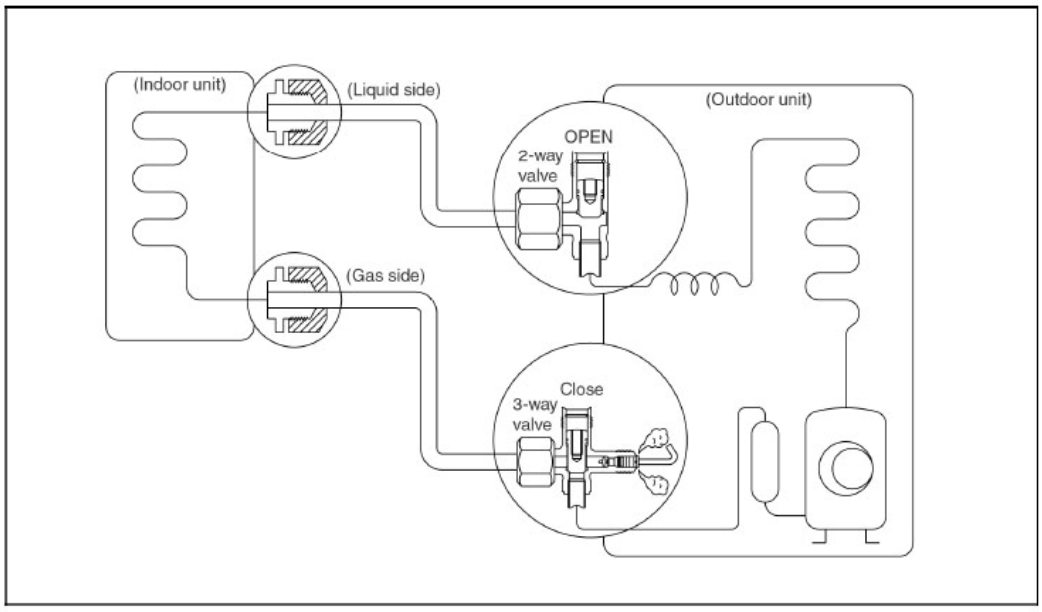
Required tools:

Hexagonal wrench; adjustable wrench; torque wrenches, wrench to hold the joints and gas leak detector.

Note:

The air in the indoor unit and in the piping must be purged. If air remains in the refrigeration piping, it will affect the compressor, reduce the cooling capacity, and could lead to a malfunction of unit.

Be sure, using a torque wrench to tighten the service port cap (after using the service port), so that it prevents the gas leakage from the refrigeration cycle.



Procedure：

1. Recheck the piping connections.
2. Open the valve stem of the 2-way valve counterclockwise approximately 90', wait 10 seconds, and then set it to closed position.

Be sure to use a hexagonal wrench to operate the valve stem

3. Check for gas leakage.

Check the flare connection for gas leakage

4. Purge the air from the system.
5. Set the 2-way valve to the open position and remove the cap from the 3-way valve's service port.
6. Using the hexagonal wrench to press the valve core pin, discharge for three seconds and then wait for one minute.
7. Use torque wrench to tighten the service port cap to a torque of 1.8 kg.m. (18n.m)
8. Set the 3-way valve to the opened position.
9. Mounted the valve stem nuts to the 2-way and 3-way valves.
10. Check for gas leakage.
11. At this time, especially check for gas leakage from the 2-way and 3-way stem nuts, and from the service port.

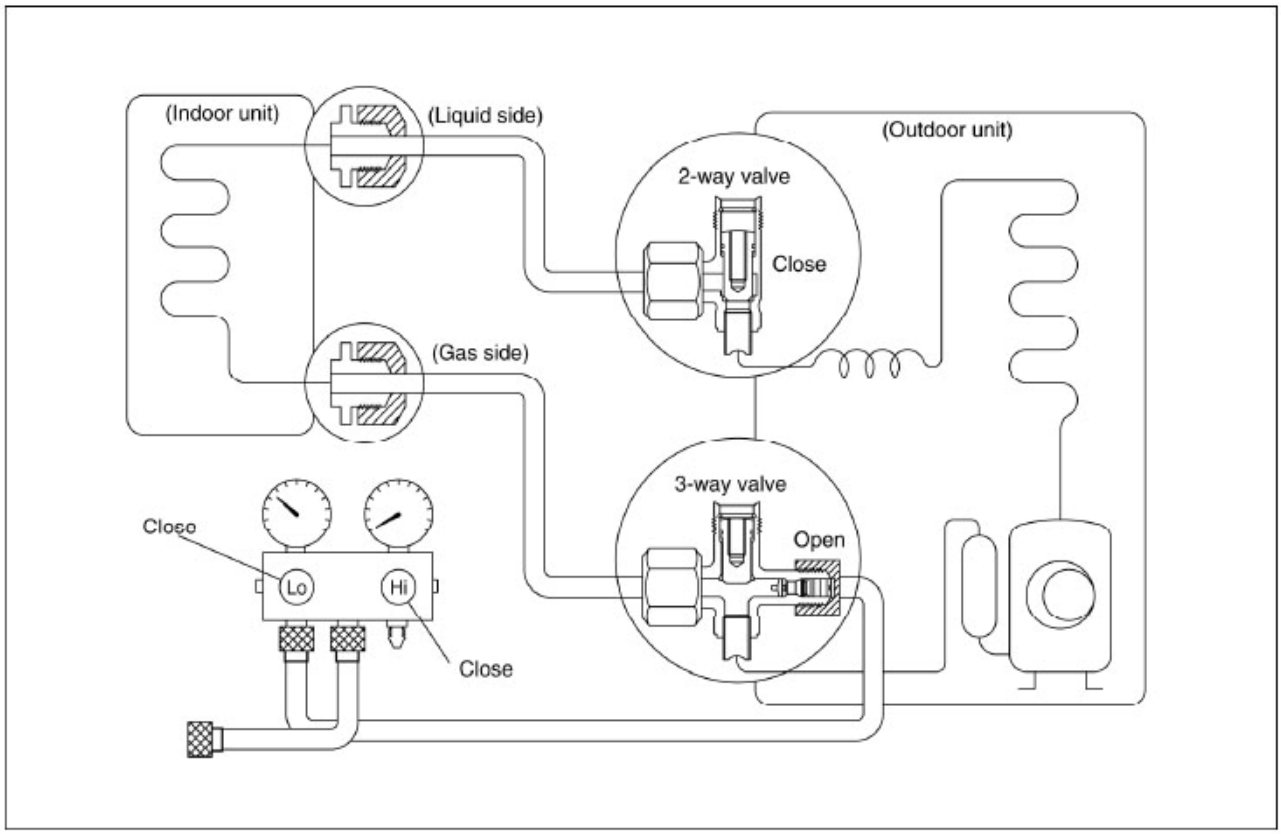
Caution:

If gas leakage is discovered in step (3) above, take the following measures.

If the leaks stop when the piping connections are tightened further, continue working from step (4).

If the gas leaks do not stop when the connections are retightened, repair the location of the leak, discharge all of the gas through the service port, and then recharge with the specified amount of gas from a gas cylinder.

8.5 Pumping down (Re-installation)



Procedure:

1. Confirm that both the 2-way and 3-way valves are set to the opened position.

   Remove the valve stem caps and confirm that the valve stems are in the opened position.

   Be sure to use a hexagonal wrench to operate the valve stems.

2. Operate the unit for 10 to 15 minutes.

3. Stop operation and wait for 3 minutes, then connect the charge set to the service port of the 3-way valve.

   Connect the charge hose with the push pin to the gas service port.

4. Air purging of the charge hose.

   Open the low-pressure valve on the charge set slightly to purge air from the charge hose.

5. Set the 2-way valve to the close position.

6. Operate the air conditioner at the cooling cycle and stop it when the gauge indicates 0.1MPa.

7. Immediately set the 3-way valve to the closed position.

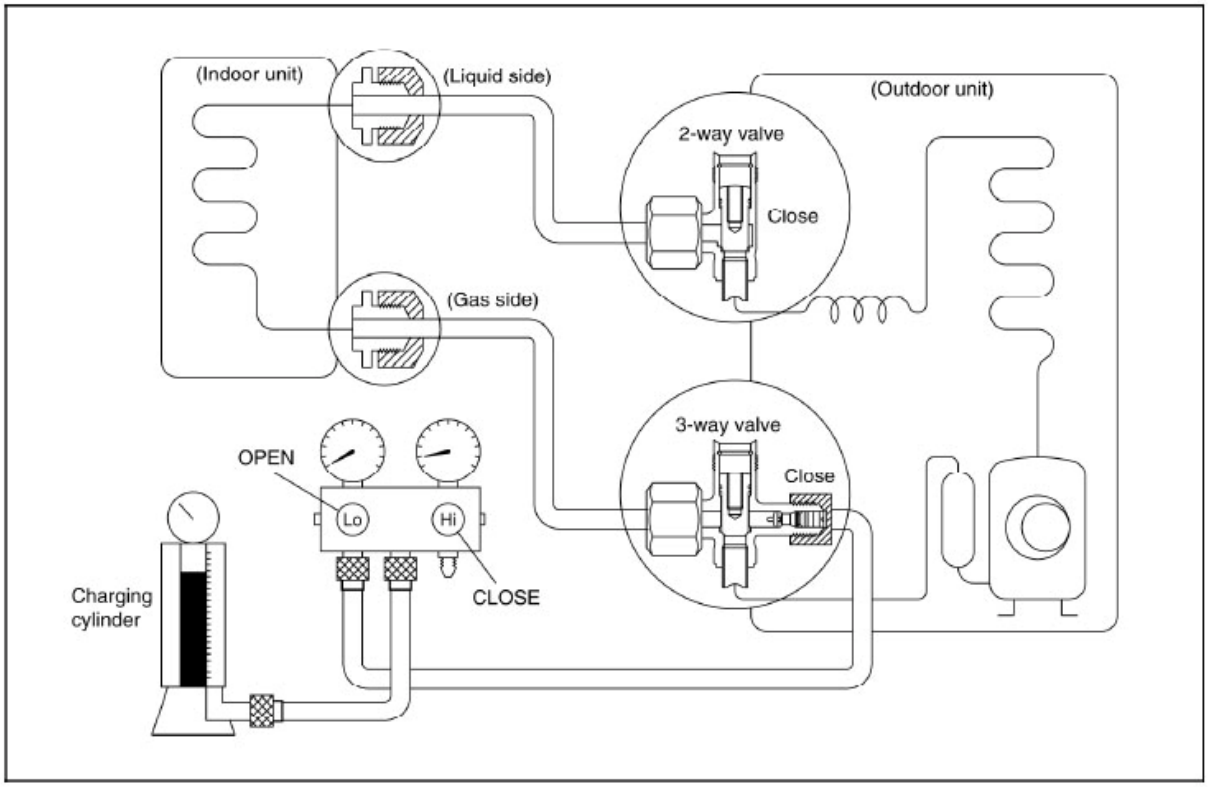
   Do this quickly so that the gauge ends up indicating 0.3 to 0.5Mpa.

8. Disconnect the charge set, and amount the 2-way and 3-way valve's stem nuts and service port caps.

   Use a torque wrench to tighten the service port cap to a torque of 1.8 kg.m.

   Be sure to check for gas leakage.

8.6 Re-air purging (Re-installation)



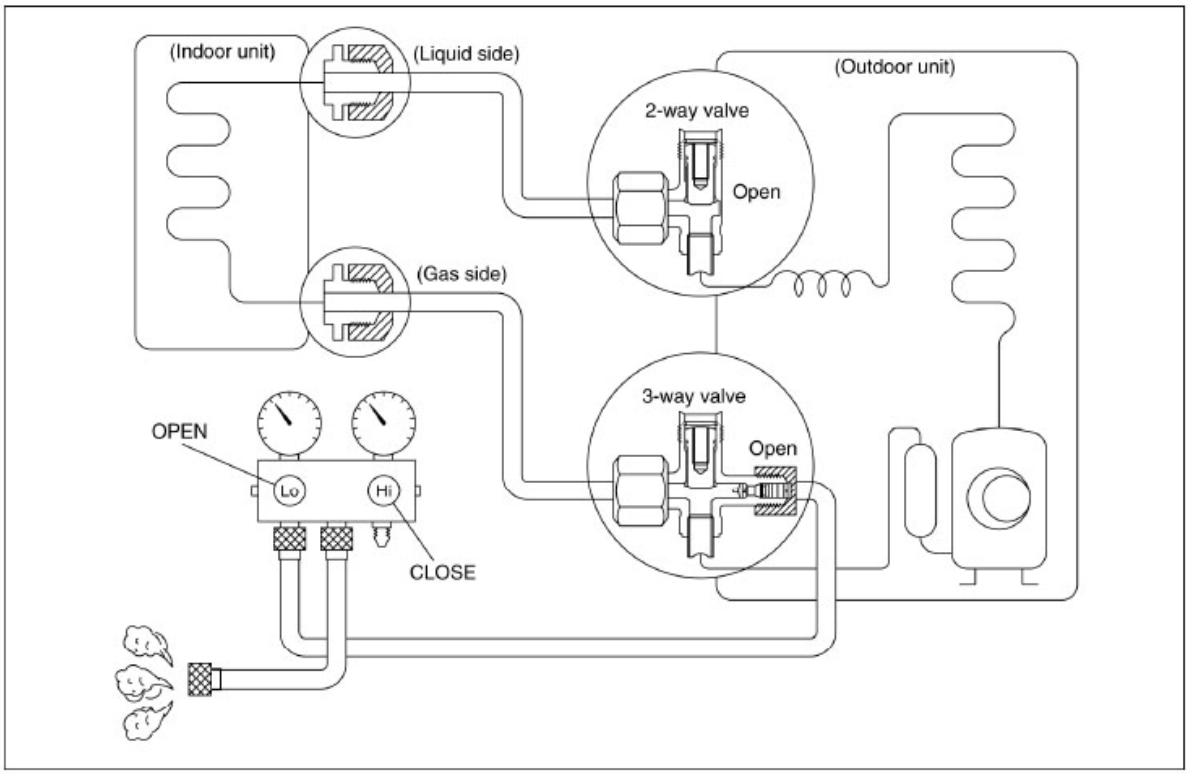
Procedure:

1. Confirm that both the 2-way and 3-way valves are set to the closed position.
2. Connect the charge set and a charging cylinder to the service port of the 3-way valve.
3. Leave the valve on the charging cylinder closed.
4. Air purging.
5. Open the valves on the charging cylinder and the charge set. Purge the air by loosening the flare nut on the 2-way valve approximately 45’ for 3 seconds then closing it for 1 minutes; repeat 3 times.
6. After purging the air, use a torque wrench to tighten the flare nut to on the 2-way valve.
7. Check the gas leakage.
8. Check the flare connections for gas leakage.
9. Discharge the refrigerant.
10. Close the valve on the charging cylinder and discharge the refrigerant until the gauge indicate 0.3 to 0.5 Mpa.
11. Disconnect the charge set and the charging cylinder, and set the 2-way and 3-way valves to the open position.
12. Be sure to use a hexagonal wrench to operate the valve stems.
13. Mount the valve stems nuts and the service port cap.

Be sure to use a torque wrench to tighten the service port cap to a torque 18N.m.

Be sure to check the gas leakage.

8.7 Balance refrigerant of the 2-way, 3-way valves



Procedure:

1. Confirm that both the 2-way and 3-way valves are set to the open position.
2. Connect the charge set to the 3-way valve's service port.

   Leave the valve on the charge set closed.

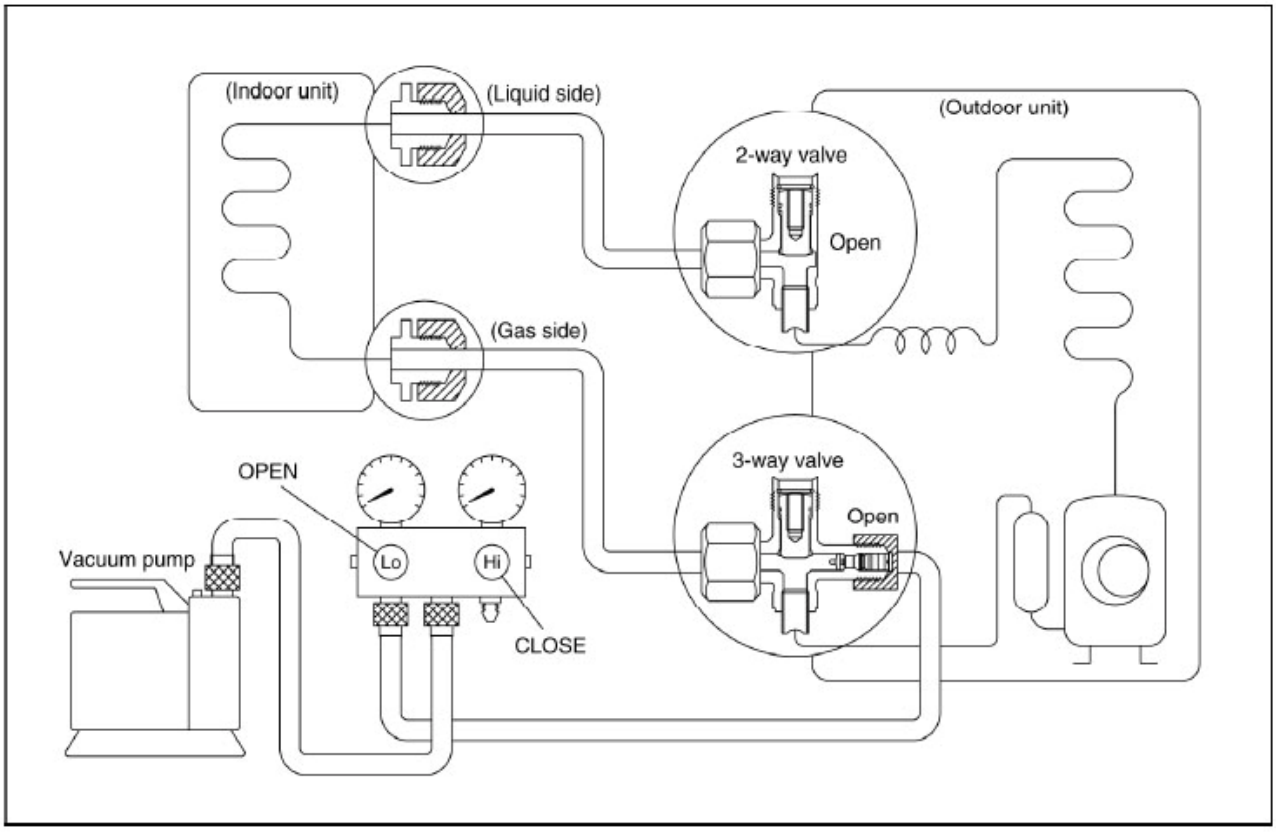
   Connect the charge hose with the push pin to the service port.

3. Open the valves (Low side) on the charge set and discharge the refrigerant until the gauge indicates 0.05 to 0.1 Mpa.

   If there is no air in the refrigeration cycle [the pressure when the air conditioner is not running is higher than 0.1Mpa, discharge the refrigerant until the gauge indicates 0.05 to 0.1 Mpa. If this is the case, it will not be necessary to apply a evacuation.

   Discharge the refrigeration gradually; if it is discharged too suddenly, the refrigeration oil sill be discharged.

8.8 Evacuation



Procedure:

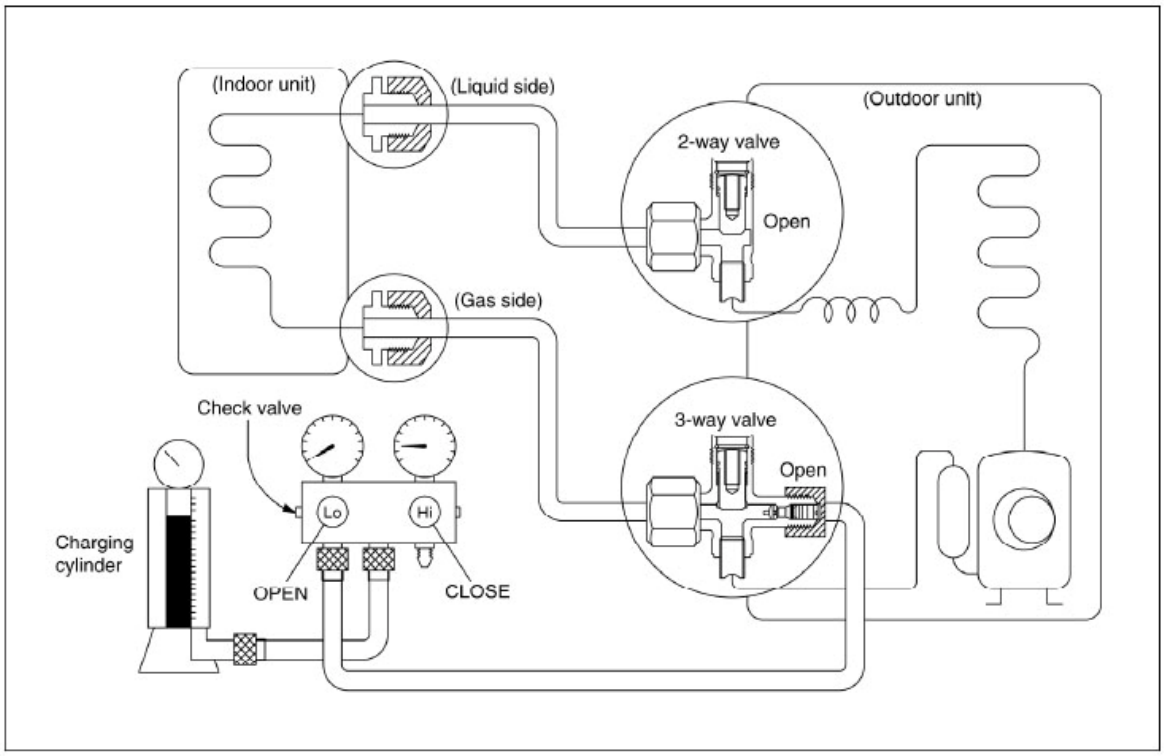
1. Connect the vacuum pump to the charge set's centre hose.
2. Evacuation for approximately one hour.

   Confirm that the gauge needle has moved toward -0.1 Mpa (-76 cmHg) [vacuum of 4 mmHg or less].

3. Close the valve (Low side) on the charge set, turn off the vacuum pump, and confirm that the gauge needle does not move (approximately 5 minutes after turning off the vacuum pump).
4. Disconnect the charge hose from the vacuum pump.

   Vacuum pump oil, if the vacuum pump oil becomes dirty or depleted, replenish as needle.

8.9 Gas charging



Procedure:

1. Connect the charge hose to the charging cylinder.

Connect the charge hose which you disconnected from the vacuum pump to the valve at the bottom of the cylinder.

2. Purge the air from the charge hose.

Open the valve at the bottom of the cylinder and press the check valve on the charge set to purge the air (be careful of the liquid refrigerant).

3. Open the valves (Low side) on the charge set and charge the system with liquid refrigerant.

If the system cannot be charge with the specified amount of refrigerant, if can be charged with a little at a time (approximately 150g each time0 while operating the air conditioner in the cooling cycle; however, one time is not sufficient, wait approximately 1 minute and then repeat the procedure.(pumping down-pin).

4. Immediately disconnect the charge hose from the 3-way valve's service port.

Stopping partway will allow the refrigerant to be discharged.

If the system has been charged with liquid refrigerant while operating the air conditioner, turn off the air conditioner before disconnecting the hose.

5. Mounted the valve stem caps and the service port

Use torque wrench to tighten the service port cap to a torque of 18N.m.

Be sure to check for gas leakage.

9 Electronic function

9.1 Electronic control working environment

Input voltage: 175~253V or 100~130V
Input power frequency: 60Hz
Ambient temperature: -7°C+45°C(C&H type), 18°C+45°C(Cooling only type)
Indoor fan normal working amp is less than 1A
Outdoor fan normal working amp is less than 1.5A
Four-way valve normal working amp is less than 1A
Swing motor: DC12V
Compressor: single-phase power supply. Its normal working amp is less than 20A

9.2 Proper symbols and their meaning

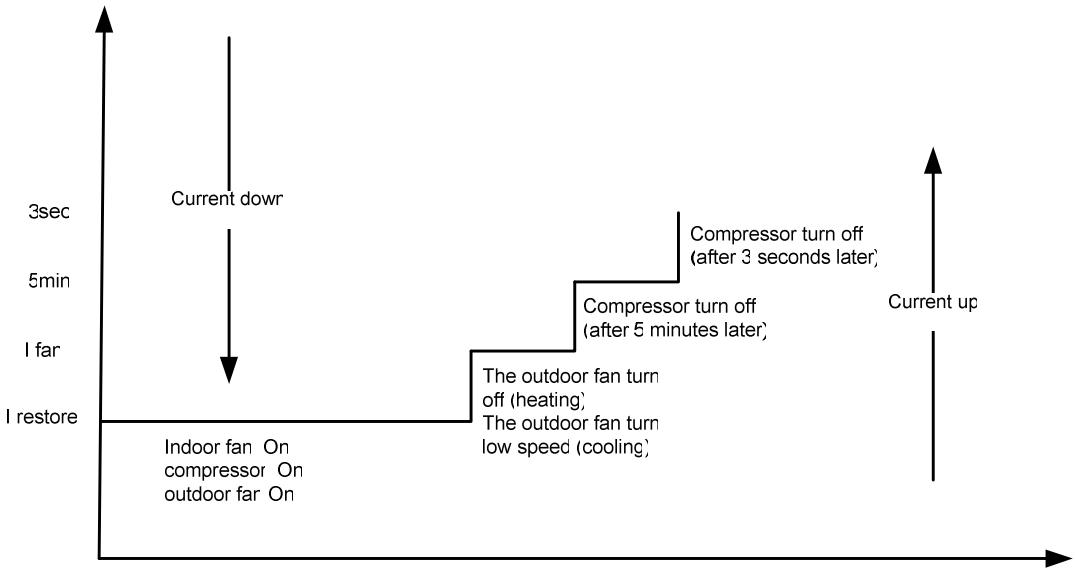
T1: Indoor ambient temperature
T2: Indoor evaporator temperature
T3: Outdoor condenser temperature.
TS: Setting temperature through the remote controller
TE1: Anti-cold wind, from Fan Off to Breeze temperature
TE2: Anti-cold wind, from Breeze to Setting Fan Speed temperature
TE3: Anti-cold wind, from Setting Fan Speed to Breeze temperature
TE4: Anti-cold wind, from Breeze to Fan Off temperature
TE5: Evaporator low temperature protection entering temperature
TE6: Evaporator low temperature protection restoring temperature
TE7: Evaporator high temperature protection, compressor off temperature
TE8: Evaporator high temperature protection, fan off temperature
TE9: Evaporator high temperature protection, restoring temperature
TE10: Condenser high temperature protection, compressor off temperature.
TE11: Condenser high temperature protection, restoring temperature.
TE14: The indoor restoring temperature when the compressor is off on the heating mode.
TE16: The indoor evaporator temperature after the defrost action, fan on temperature.
TC1: Outdoor condenser sensor temperature for the defrost condition 1.
TC2: Condenser sensor temperature after defrost.
TC3: Outdoor condenser sensor temperature for the defrost condition 2.

9.3 Function

Remote receiving
Testing and forced running
Position set for indoor unit wind vane
LED displaying and alarm
On or off Timer
Protection for the compressor
Current protection
High temperature protection of indoor heat exchanger at heating mode
Auto defrosting and heating recovery at heating mode
Anti cold air at heating mode

9.4 Protection

9.4.1 3 minutes delay at restart for compressor.
9.4.2 Sensor protection at open circuit and breaking disconnection
9.4.3 Fan Speed is out of control. When Indoor Fan Speed is too high(higher than High Fan+300RPM)or too low(lower than 400RPM), the unit stops and LED displays failure information and can't returns to normal operation automatically.
9.4.4 Cross Zero signal error warning. If there is no Cross Zero signals in 4 minutes, the unit stops and LED displays failure information and can't returns to normal operation automatically.
9.4.5 The current protection of the compressor



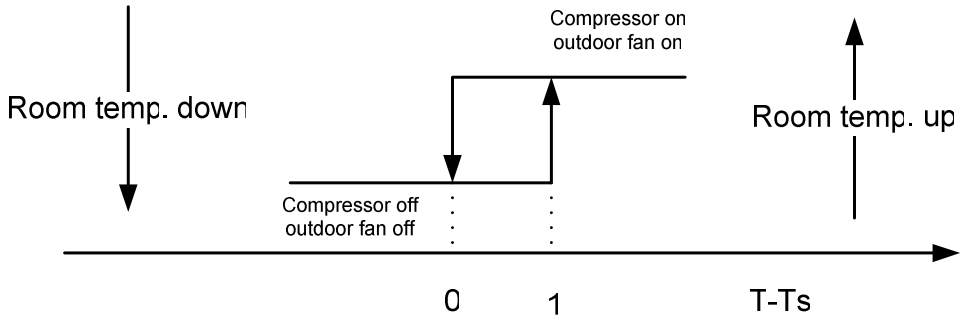
If compressor turns off for continuously 4 times due to current protection in 5 minutes from Compressor On, the unit stops and LCD displays failure information and can't returns to normal operation automatically.

9.5 Fan only mode

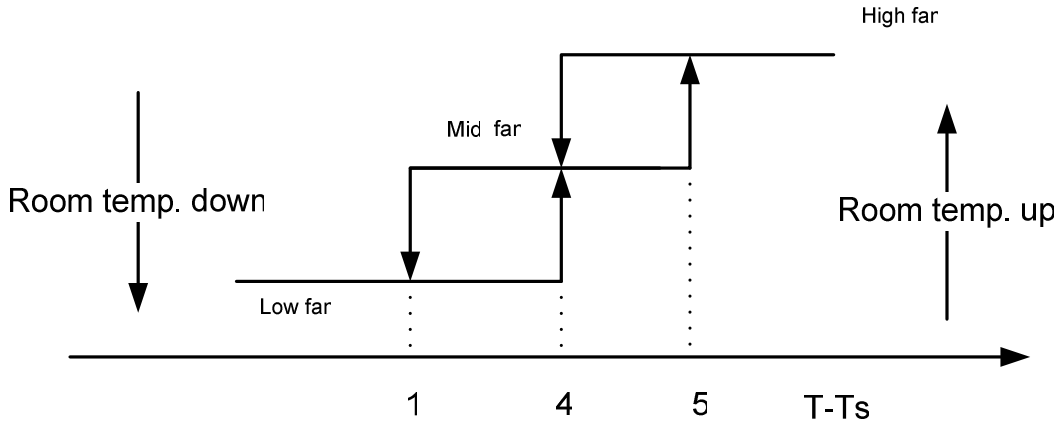
Fan speed is high/mid/low/ Auto

9.6 Cooling mode

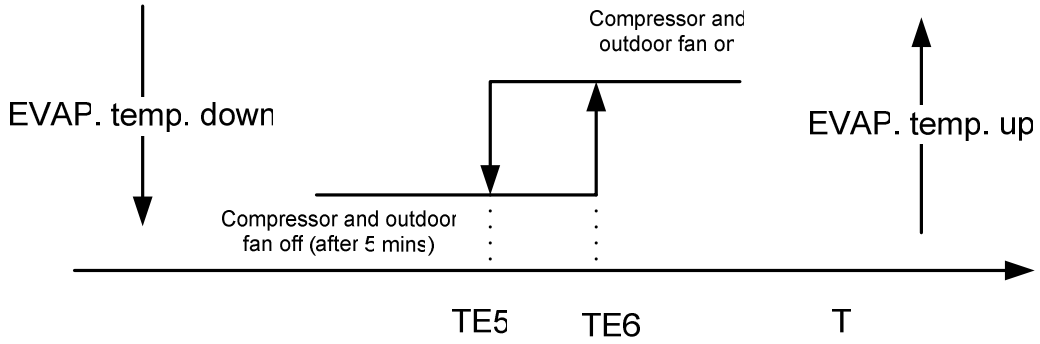
The 4-way valve is closed at cooling mode.
The action of the compressor and the outdoor fan:(T=indoor temperature)



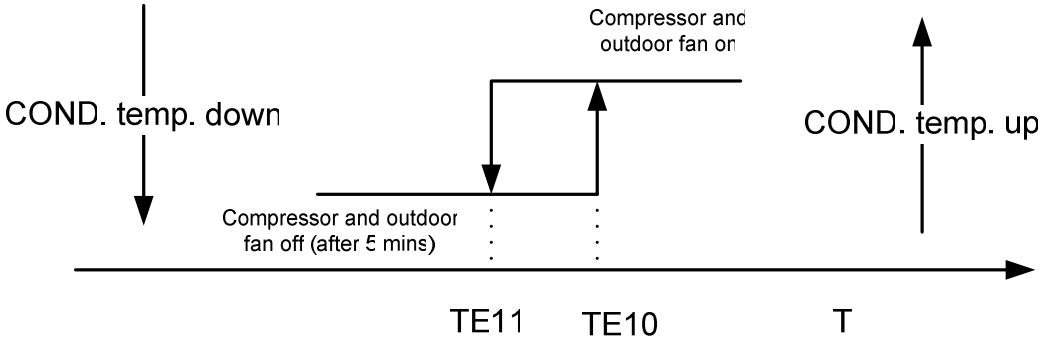
Auto fan at cooling mode:



Anti-freezing control to indoor evaporator at cooling mode (T: evaporator temp.)



Condenser high temperature protection (only for heat pump)



9.7 Dehumidifying mode

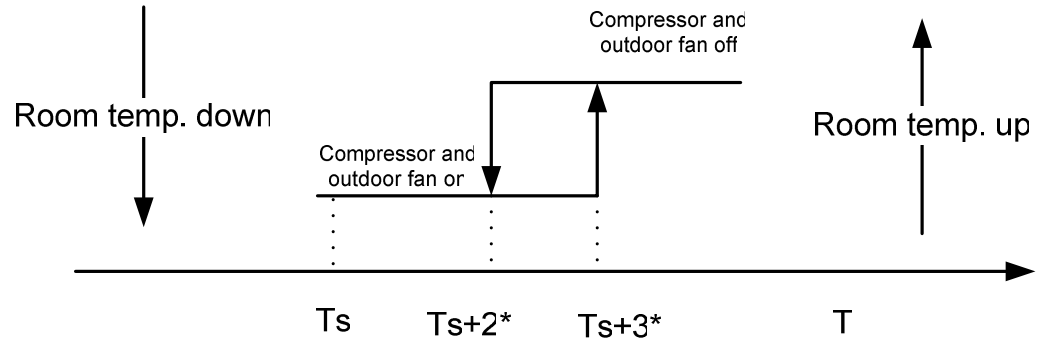
Indoor fan speed at low speed.
Protection is same as cooling mode.

9.8 Heating mode

9.8.1 Generally, the 4-way valve is open in heating mode, but it is closed in defrosting mode. 4-way valve must delay 2 minutes compared with compressor if the compressor changed into non-heating mode or turned off. 4-way valve doesn't delay in dehumidifying mode.

9.8.2 Generally, the outdoor fan is turned off with the on-off action of compressor in heating mode, except for the defrosting mode or the end of defrost.

9.8.3 Action of compressor and outdoor fan motor at heating mode: compressor must run for 7 minutes after starting and then judge temperature. Meanwhile other protections are still valid.

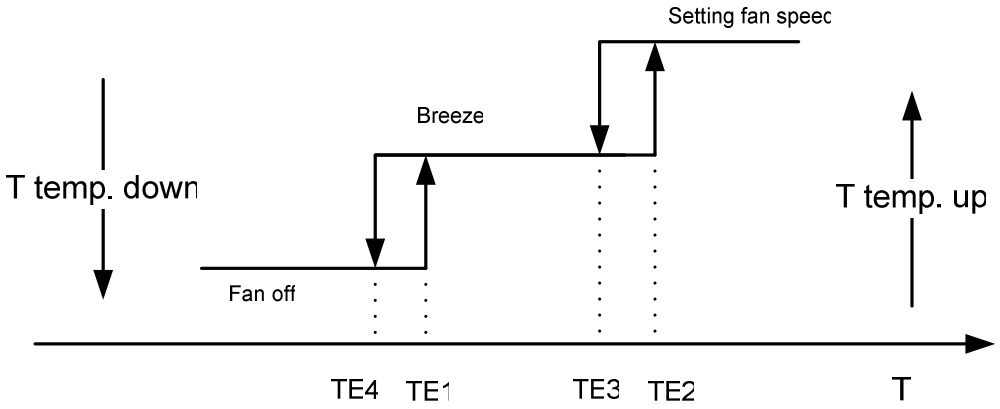


*** This parameter can be changed from 0 to 3**

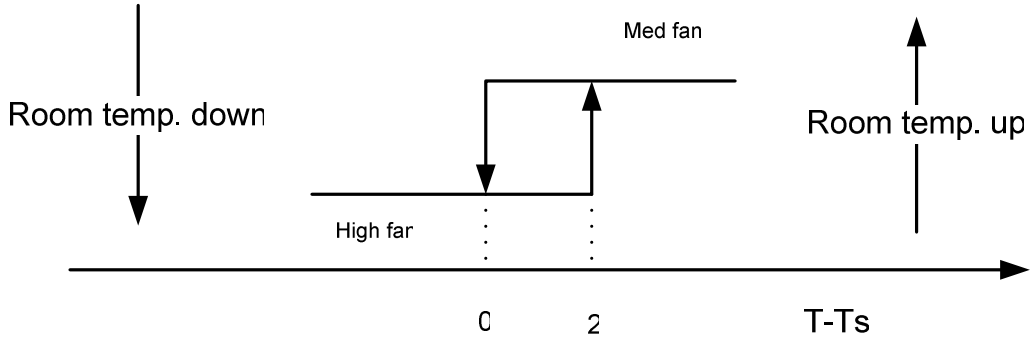
9.8.4 Indoor Fan actions at heating mode

Indoor Fan can be set at HIGH/MID/LOW/AUTO by using a remote controller, but Anti-cold wind function prevails.

9.8.5 Anti-cold wind control function at heating mode (T=indoor exchanger temp.)

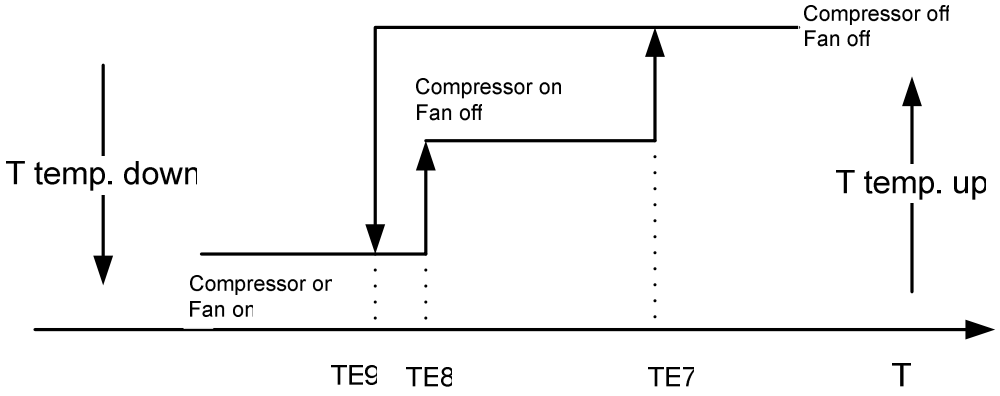


9.8.6 Auto wind at heating mode (T=indoor temp.)



9.8.7 Indoor evaporator high-temperature protection at heating mode

(T=indoor exchanger temp.)



The louver opens to Standard Angle ANGLHEAT when power is on for the first time

9.9 Defrosting mode(available for heating mode)

9.9.1 Defrosting condition:

Defrost starts when either of the following 1&2:

1. T3 lower than 0'C, lasts for more than 40 minutes, and during this period T3 is lower than -3'C consecutively reaches 3 minutes.

2. Calculate from the end of latest defrost, evaporator high temp. protection only closes outdoor fan

with the compressor still running. Add up to 90 minutes.

9.9.2 Conditions of defrost ending:

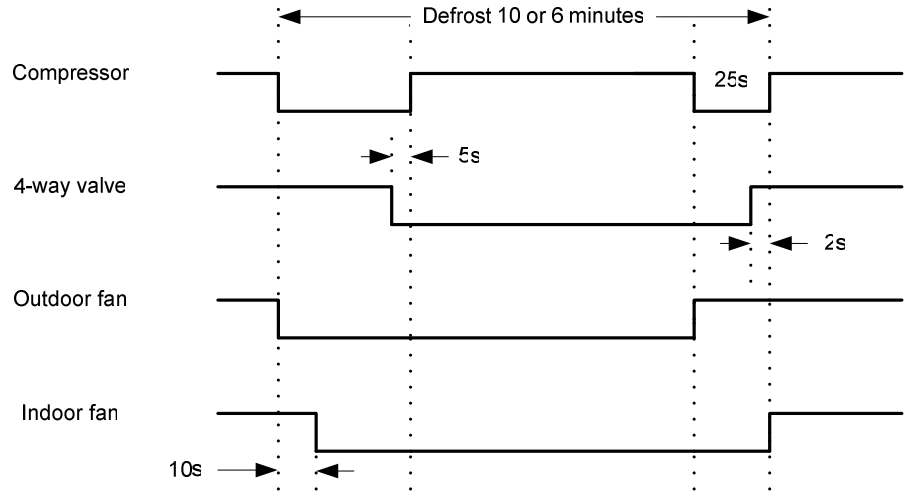
Defrosting ends when either of the following:

The time gets to 10 minutes.

T3>20'C.

The circulation is as following:

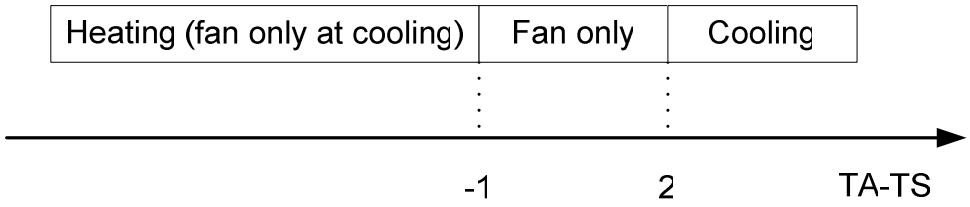
9.9.3 Defrosting Actions



Remark: when the evaporator pipe temperature sensor more than TE16, the indoor fan start to run.

9.10 Auto mode

9.10.1 The air conditioner automatically selects one of the following operation modes: cooling, heating or fan only according to the temperature difference between room temperature (TA) and set temperature (TS).



9.10.2 The indoor fan blows automatically in corresponding selected mode;

9.10.3 The motion of indoor fan's blade should accord with the selected operation mode;

9.10.4 One mode should be carried out for at least 15 minutes once selected. If the compressor cannot start for 15 minutes, reselect the operation mode according to the room temp. and set temp., or reselect when the set temp. varies

9.11 Force cooling function

9.11.1 Select forced cooling function with the forced cooling button or the switch

9.11.2 The compressor is unconditionally turned on, after 30 minutes cooling operation whose fan mode

is set as low, the A/C operates at the DRY mode with a set temp. of 24℃

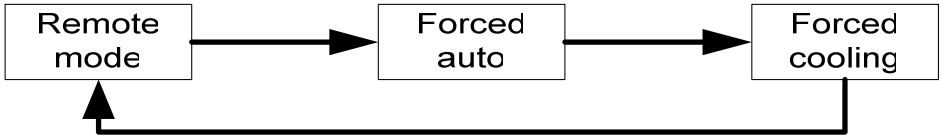
9.11.3 All protections of remote control cooling are available at forced cooling operation

9.11.4 Forced Auto function

Select forced auto function with the forced auto button or the switch.

In forced auto status the A/C operates at remote control mode with a set temp. of 24℃

Manual operation is controlled by touching buttons and divided into force cooling and forced auto mode. It transfer between these two modes by pressing the buttons, the cycling order of the button press is as below graph show to you.

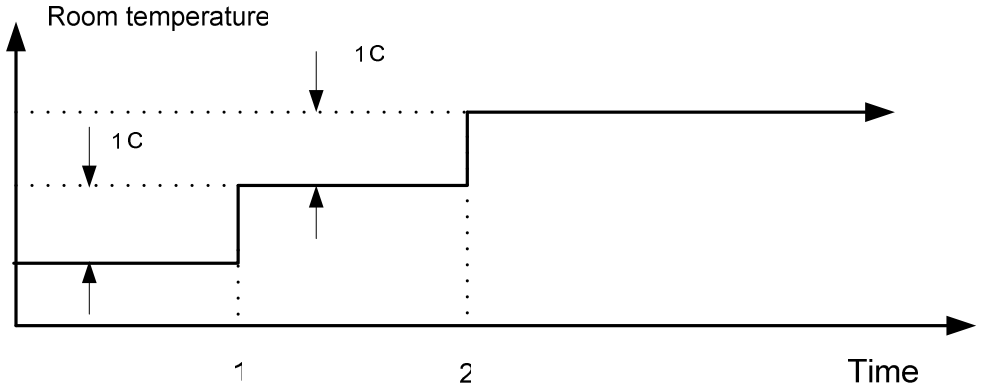


9.12 Sleep mode(Economic mode)

9.12.1 The sleep function is available at cooling, heating or auto mode

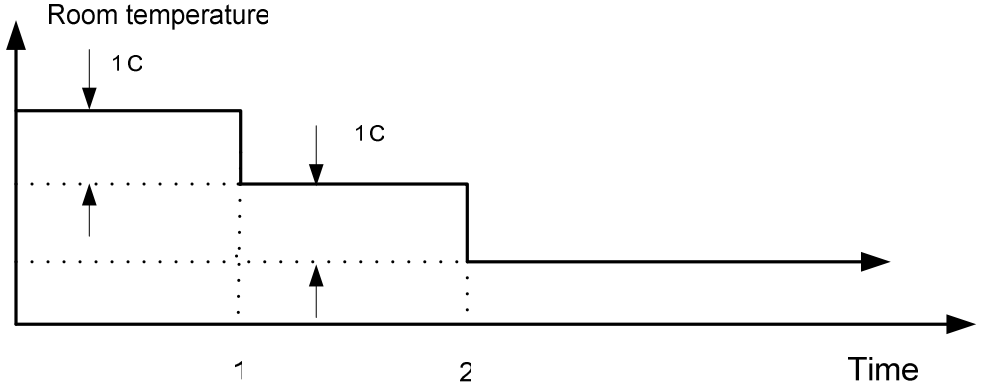
9.12.2 Cooling:

The set temperature rise 1℃ per hour. Two hours later, the set temperature will maintain as a constant and the fan speed is kept at low speed.



9.12.3 Heating:

The set temperature decrease 1℃ per hour. Two hours later, the set temperature will maintain as a constant and the air circulation is kept at low speed (Anti-cold function takes precedence over all).



9.12.4 Auto:

After an hour running under economic mode, the set temp will rise 1℃, if it is under cooling mode; the set temp will decrease 1℃,if it is under heating mode; the set temp will be changeless, if it is under fan-only mode; the condition will be the same after the air conditioner running under economic mode after 2 hours, and during the next time the set temp do not change. The total time is 7 hours, after 7 hours the unit stops.

9.13 Auto restart function

In case of a sudden power failure, this function automatically sets the unit to previous settings before the power failure when power returns

This function is unavailable in force run mode.

9.14 Turbo mode

9.14.1 For 9K and 12K type only

9.14.2 Under cooling mode (except Force Cooling mode), the indoor fan motor will run in High speed when receive the signal from remoter controller, and will get back to the presetting speed when receive again.

9.14.3 The turbo mode will cancel and indoor fan motor will get back to the presetting speed when one of following condition occur:

a. mode changed;

b. get into Force Cooling mode;

c. turn off the air conditioner;

9.14.4 Sleep mode is not available in this mode.

9.15 Ionizer (air clean) function

9.15.1 Ionizer (air clean) function is effected when the unit is working and controlled by the remote controller.

9.15.2 This function is active when the unit received the signal from the remote controller first time and inactive when received the signal again. Repeat this circle when received signal again.

9.15.3 This function is working only when the indoor fan is working.

9.15.4 This function will not stop when the working mode changed, and be inactive when the unit shut down.

9.16 Follow me function

9.16.1 This function starts when the indoor unit received the signal from remote controller, and the air conditioner is operated by the temperature information included in the signal and the set temperature. In this mode, the indoor temperature sensor in the indoor unit is inactive.

9.16.2 When the indoor unit received the signal by pressing the button of remote controller, the buzzer in indoor unit will sound once. And the remote controller will send the corrected signal automatic per 3

minutes, the buzzer keep quiet at this time.

9.16.3 When the indoor unit have not received the corrected signal for 7 minutes, this function will be shut down. The air conditioner is working in common way.

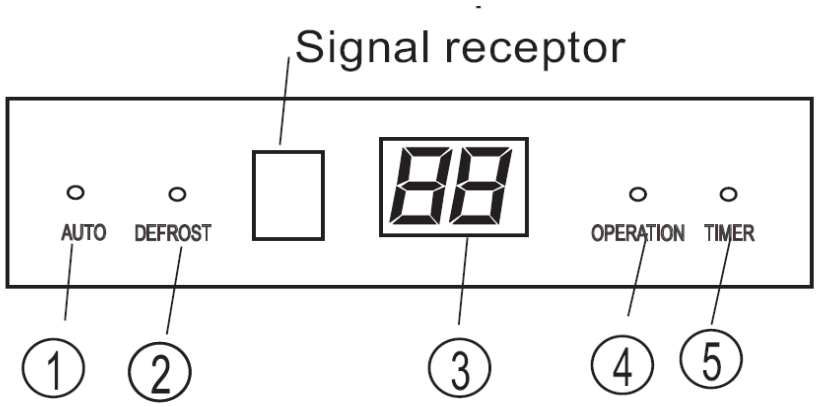
10 Model and Parameters

	MSE-09C(H)RN1-BQ8W	MSE-12C(H)RN1-BQ8W	MSE-12C(H)RN1-MQ8W
I3SEC	14A	18A	11A
I5MIN	12A	16A	9A
IFAN	10.5A	14A	7A
IRESTORE	9A	12.5A	6A
IDEFROST	6.5A	11A	5.5A
HSPEEDH	1250	1270	1270
HSPEEDM	1000	1060	1060
HSPEEDL	800	900	900
HSPEEDS	700	750	750
CSPEEDP	125	1270	1270
CSPEEDH	1250	1270	1270
CSPEEDM	1000	1100	1100
CSPEEDL	800	1000	1000
CSPEEDS	700	900	900
TE1	31	31	31
TE2	34	33	33
TE3	30	27	27
TE4	22	20	20
TE5	4	5	5
TE6	10	12	12
TE7	60	62	62
TE8	54	54	54
TE9	48	48	48
ANGLRANGE	185	160	160
ANGLOFF	106	0	0
ANGLCOOL	160	50	50
ANGLHEAT	30	78	78
ANGLCSL	30	35	35
ANGLCSH	55	60	60
ANGLHSL	30	63	63
ANGLHSH	55	78	78
ANGLDL	30	10	10
ANGLDH	160	78	78
ANGLFL	55	78	78
ANGLFH	140	78	78
$TH_{DEFROST}$	14	14	14
$TM_{DEFROST}$	15	15	15
$TL_{DEFROST}$	16	16	16
PDELAYCOUNT	127	127	127

	MSE-18C(H)RN1-MQ8W
Flag0	58H
Flag1	01H
AngleOffL	B9H
AngleOffH	00H
AngleHeatL	84H
AngleHeatH	00H
AngleCoolL	5FH
AngleCoolH	00H
AngleDefL	00H
AngleDefH	00H
AngleMotorOn	39H
AngleStep	25H
AngleLouver	00H
AngleTime	05H
IResume	92H
I5min	C4H
I3sec	D0H
IOFan	A3H
Idefrost	00H
TE1	28H
TE2	2FH
TE3	2DH
TE4	23H
TE5	11H
TE6	1BH
TE7	4EH
TE8	47H
TE9	41H
TE10	50H
TE11	46H
TE12	40H
TE13	45H
TE14	2FH
TE15	47H
TE16	39H
TC1	0FH
TC2	23H
TC3	0CH
DefrostTimeL	58H
DefrostTimeH	02H

11 Troubleshooting

11.1 Display board



Operation

The indicator flashes once every second after power is on and illuminates when the air conditioner is in operation.

Timer indicator:

The indicator illuminates then TIMER is set ON.

PRE-DEF. indicator (For cooling & heating mode only)

The air conditioner starts defrosting automatically if outdoor unit frosts in heating operating.

At this time, PRE-DEF. indicator illuminates.

Auto indicator:

This indicator flashes when the air conditioner is in AUTO operation.

ECON indicator

This indicator illuminates while the air conditioner is in economic operation.

11.2 Troubleshooting

For 9K and 12K :

Failure phenomenon	**Operation lamp**	**Timer lamp**	
Indoor fan speed has been out of control for over 1 minute	☆	X	
Indoor room temp. or evaporator sensor is open circuit or short circuit	☆	On	
Over current protection of the compressor occurs 4 times	X	☆	
EEROM error	On	☆	
Indoor unit communication error	☆	☆	illumine simultaneous
Outdoor condenser temperature sensor is open circuit or short circuit	☆	☆	illumine alternately

X Extinguish

☆ Flash at 5Hz

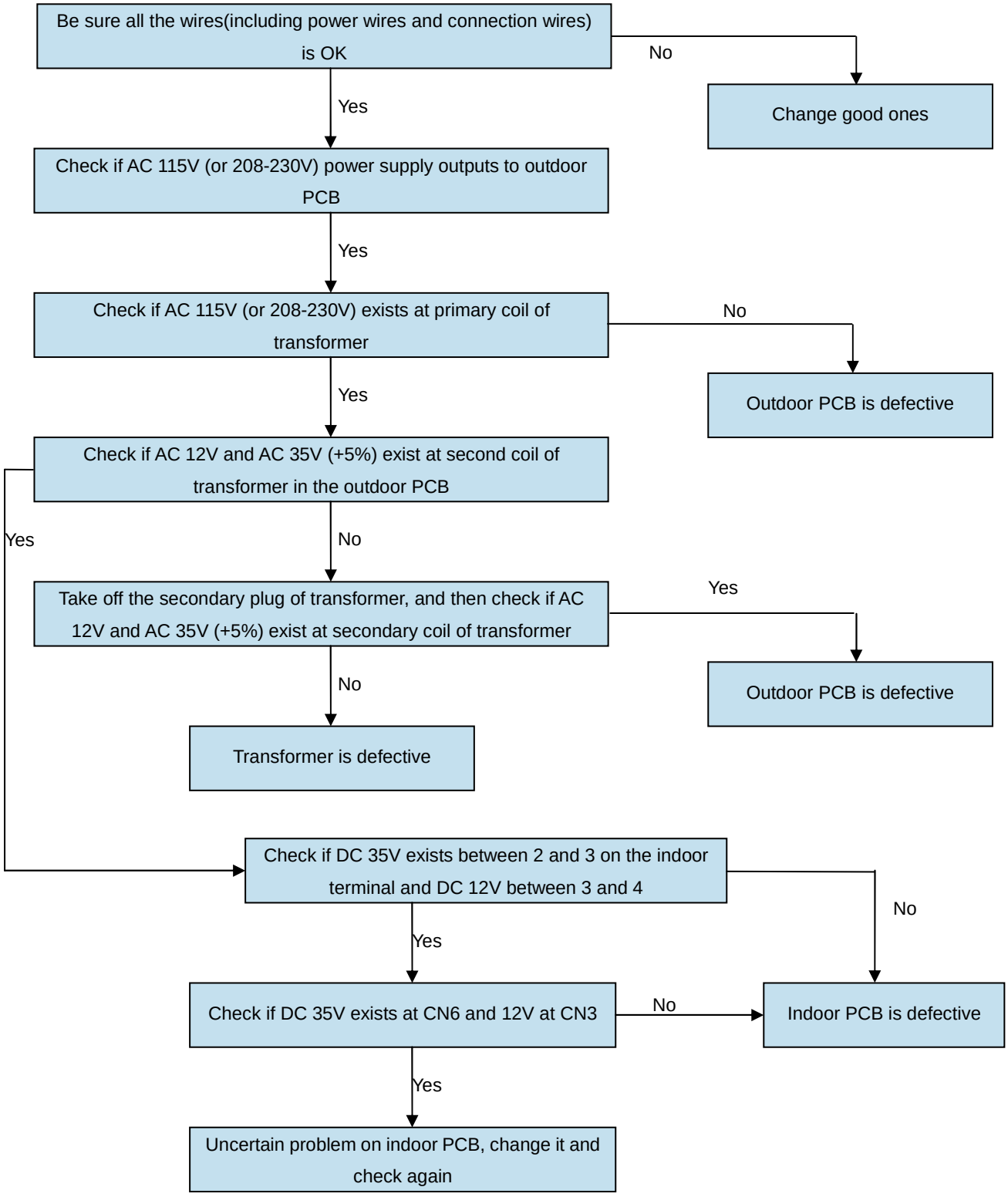
For 18K:

Failure phenomenon	Operation lamp	Timer lamp	Defrosting lamp	Auto lamp
Over current protection of the compressor occurs 4 times	☆	☆	☆	☆
Indoor room temp. sensor is open circuit or short circuit	X	☆	X	X
Temp. sensor on indoor evaporator is open circuit or short circuit	☆	X	X	X
Temp. sensor on outdoor condenser is open circuit or short circuit (without for cooling only models)	X	X	☆	X
Outdoor unit protects(outdoor temp sensor, phase order etc)	X	X	☆	☆
EEROM error	X	☆	X	☆
Indoor unit communication error	X	X	X	☆

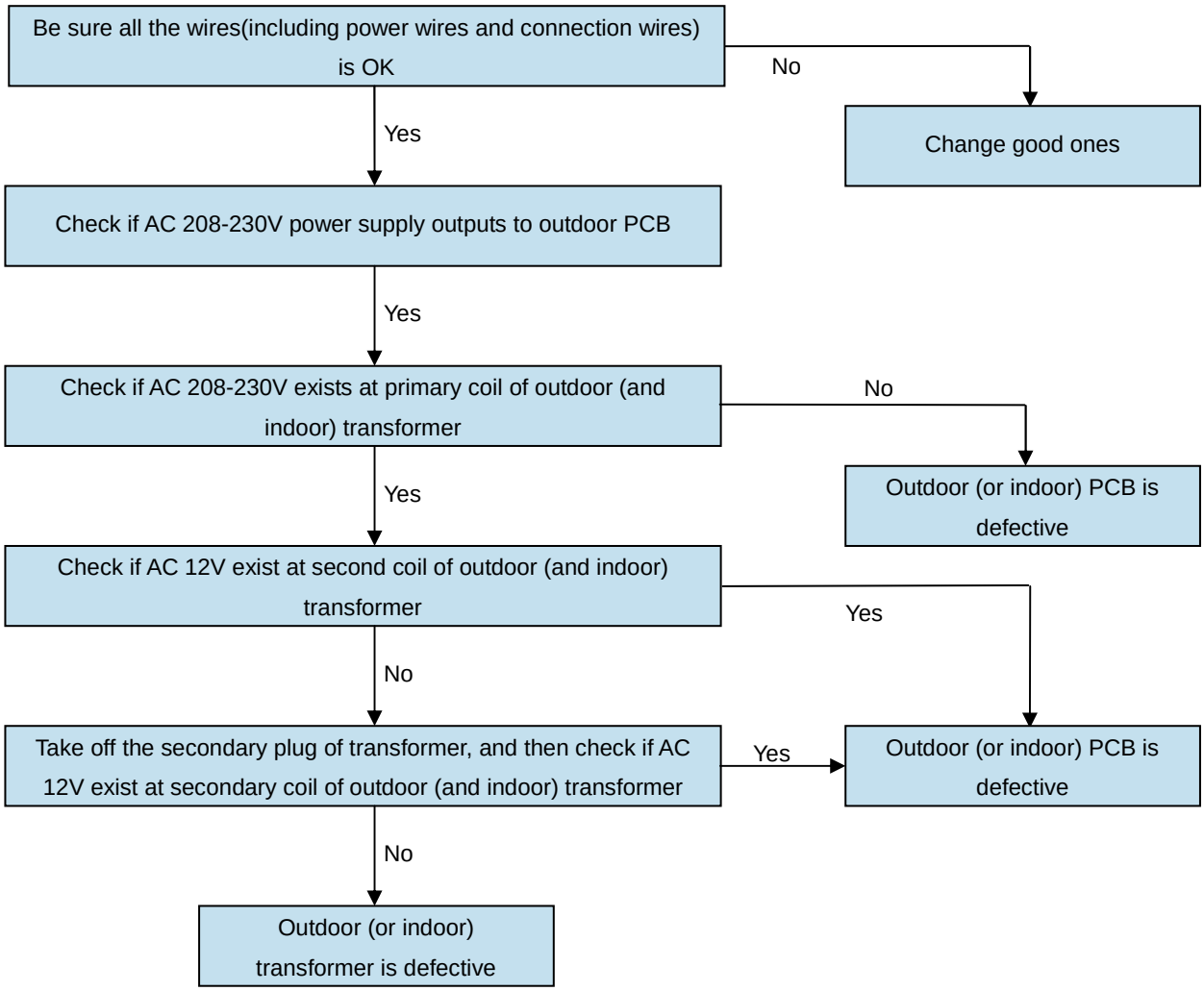
11.3 Diagnostic chart

After energizing, no indicator is lighted and the air conditioner can't be operated.

For the 9K and 12K models:


Be sure all the wires(including power wires and connection wires) is OK
No
Change good ones
Yes
Check if AC 115V (or 208-230V) power supply outputs to outdoor PCB
Yes
Check if AC 115V (or 208-230V) exists at primary coil of transformer
No
Outdoor PCB is defective
Yes
Check if AC 12V and AC 35V (+5%) exist at second coil of transformer in the outdoor PCB
Yes
No
Take off the secondary plug of transformer, and then check if AC 12V and AC 35V (+5%) exist at secondary coil of transformer
Yes
Outdoor PCB is defective
No
Transformer is defective
Check if DC 35V exists between 2 and 3 on the indoor terminal and DC 12V between 3 and 4
No
Yes
Check if DC 35V exists at CN6 and 12V at CN3
No
Indoor PCB is defective
Yes
Uncertain problem on indoor PCB, change it and check again

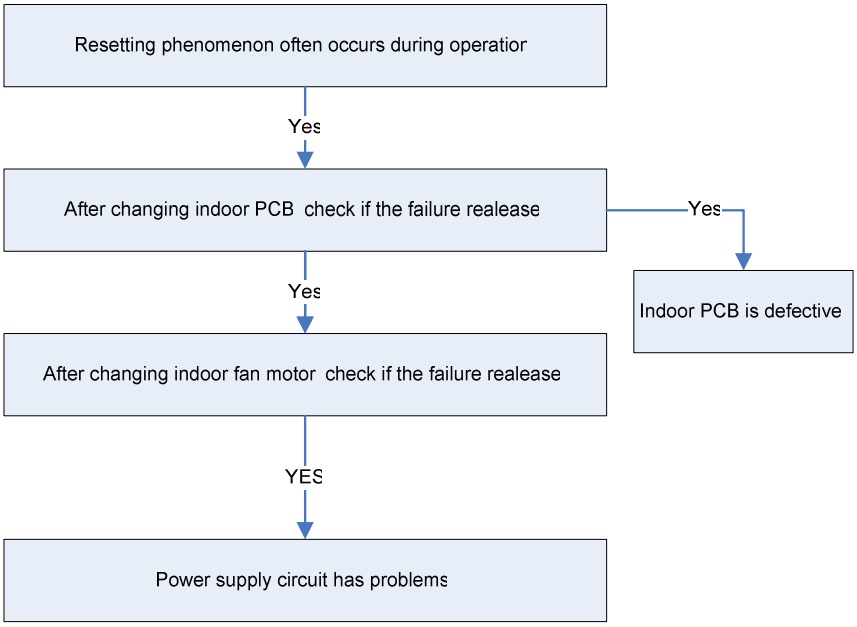
For 18K and 24K models


Be sure all the wires(including power wires and connection wires) is OK
No
Change good ones
Yes
Check if AC 208-230V power supply outputs to outdoor PCB
Yes
Check if AC 208-230V exists at primary coil of outdoor (and indoor) transformer
No
Outdoor (or indoor) PCB is defective
Yes
Check if AC 12V exist at second coil of outdoor (and indoor) transformer
Yes
No
Take off the secondary plug of transformer, and then check if AC 12V exist at secondary coil of outdoor (and indoor) transformer
Yes
Outdoor (or indoor) PCB is defective
No
Outdoor (or indoor) transformer is defective

11.4 Resetting phenomenon often occurs during operation.

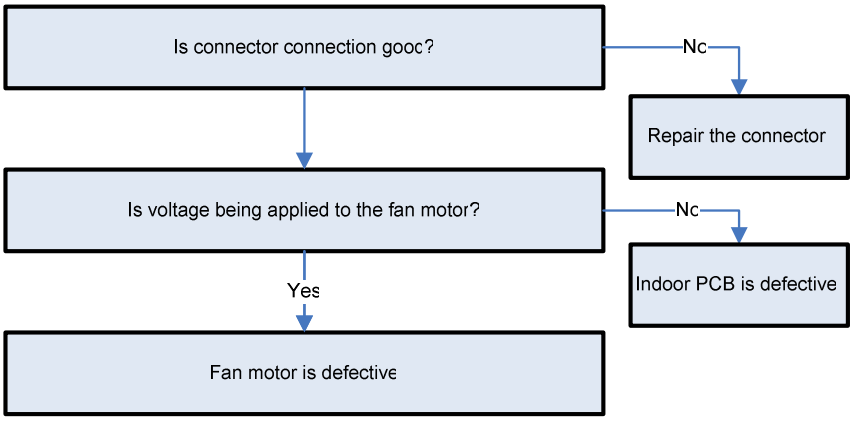
(That is automatically entering to the status when power is on.)

The reason is that the instantaneous voltage of main chip is less than 4.5V. Check according to the following procedure:


Resetting phenomenon often occurs during operatior
Yes
After changing indoor PCB check if the failure realease
Yes
Indoor PCB is defective
Yes
After changing indoor fan motor check if the failure realease
YES
Power supply circuit has problems

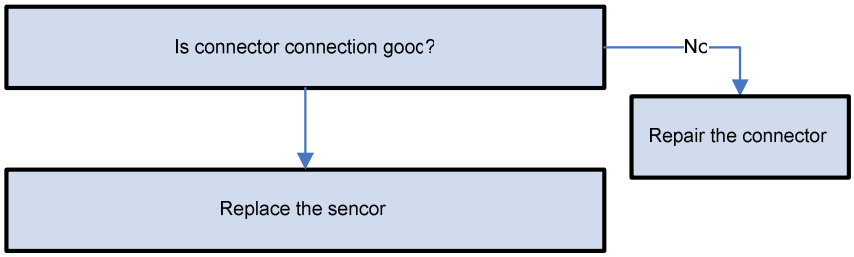
11.5 Indoor fan speed out of control .

Just for 9K and 12K type when indoor fan speed has been out of control for over 1 minute

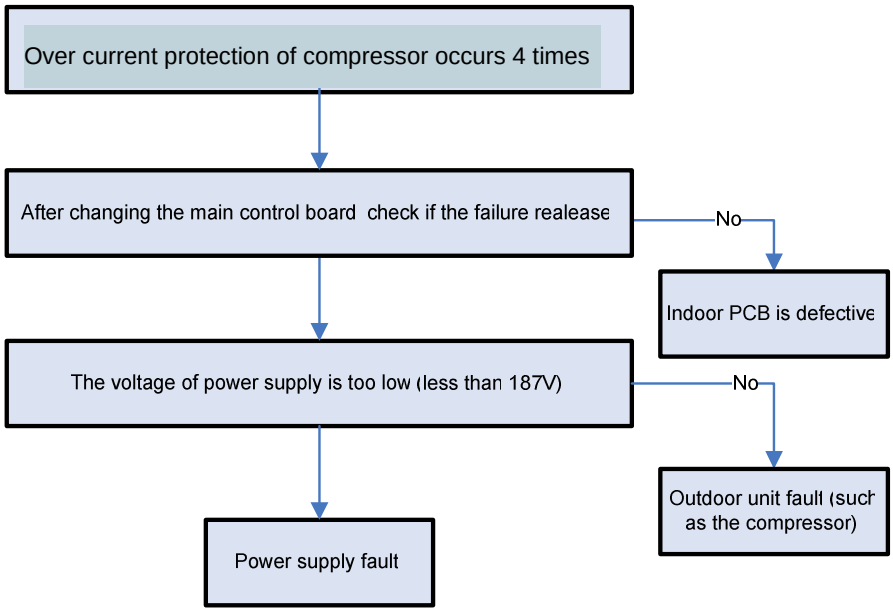


11.6 Temperature sensor error.

Including the indoor room, indoor evaporator and outdoor condenser temperature sensor.



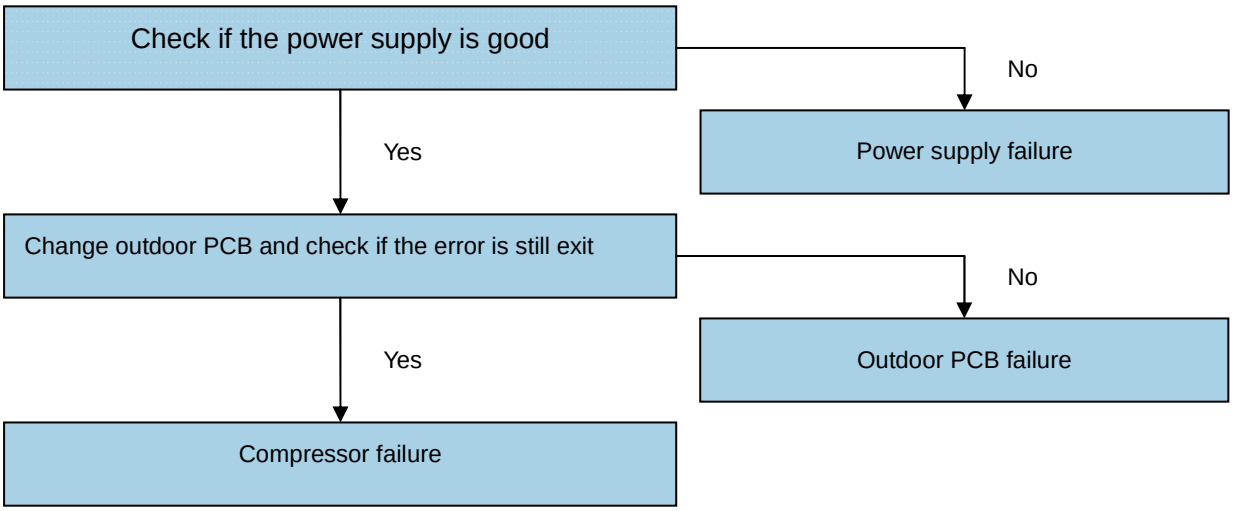
11.7 Over current protection of the compressor occurs 4 times


Over current protection of compressor occurs 4 times
After changing the main control board check if the failure realease
No
Indoor PCB is defective
The voltage of power supply is too low (less than 187V)
No
Outdoor unit fault (such as the compressor)
Power supply fault

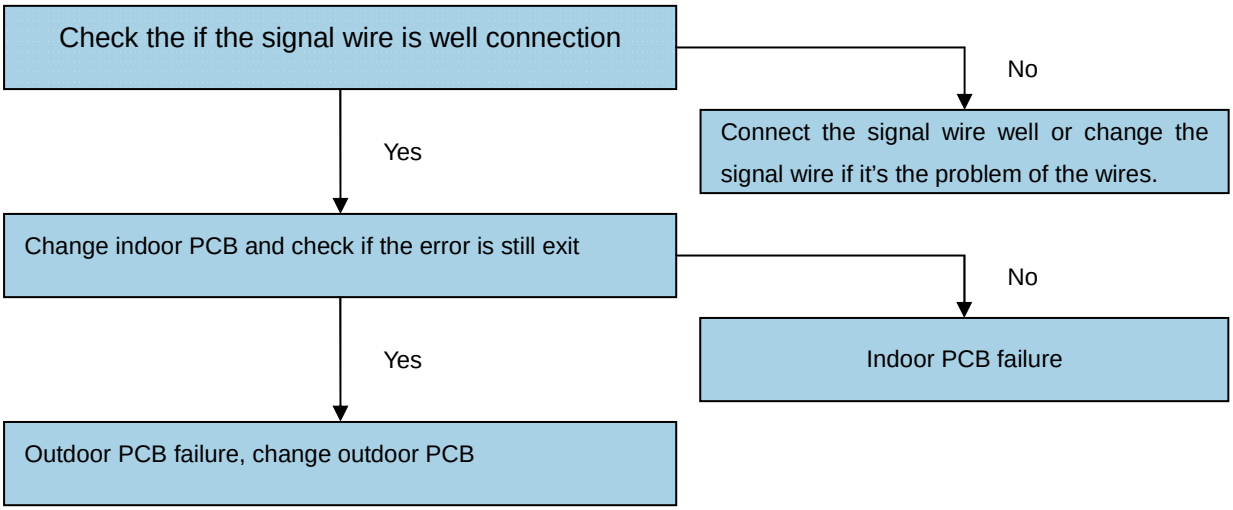
11.8 EEROM error

EEROM error, indoor PCB is defective.

11.9 Outdoor unit protects



11.10 Indoor unit communication error.


Check the if the signal wire is well connection
No
Connect the signal wire well or change the signal wire if it's the problem of the wires.
Yes
Change indoor PCB and check if the error is still exit
No
Indoor PCB failure
Yes
Outdoor PCB failure, change outdoor PCB

12 Characteristic of temperature sensor

Temp.℃	Resistance KΩ	Temp.℃	Resistance KΩ	Temp.℃	Resistance KΩ
-10	62.2756	17	14.6181	44	4.3874
-9	58.7079	18	13.918	45	4.2126
-8	56.3694	19	13.2631	46	4.0459
-7	52.2438	20	12.6431	47	3.8867
-6	49.3161	21	12.0561	48	3.7348
-5	46.5725	22	11.5	49	3.5896
-4	44	23	10.9731	50	3.451
-3	41.5878	24	10.4736	51	3.3185
-2	39.8239	25	10	52	3.1918
-1	37.1988	26	9.5507	53	3.0707
0	35.2024	27	9.1245	54	2.959
1	33.3269	28	8.7198	55	2.8442
2	31.5635	29	8.3357	56	2.7382
3	29.9058	30	7.9708	57	2.6368
4	28.3459	31	7.6241	58	2.5397
5	26.8778	32	7.2946	59	2.4468
6	25.4954	33	6.9814	60	2.3577
7	24.1932	34	6.6835	61	2.2725
8	22.5662	35	6.4002	62	2.1907
9	21.8094	36	6.1306	63	2.1124
10	20.7184	37	5.8736	64	2.0373
11	19.6891	38	5.6296	65	1.9653
12	18.7177	39	5.3969	66	1.8963
13	17.8005	40	5.1752	67	1.83
14	16.9341	41	4.9639	68	1.7665
15	16.1156	42	4.7625	69	1.7055
16	15.3418	43	4.5705	70	1.6469